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EDGAR J. BUTTENHEIM, President
HAROLD S. BUTTENHEIM, Editor
THEODORE REED KENDALL
Secretary and Engineering Editor
M. V. FULLER, Associate Editor
ALDEN W. WELCH, Research Editor
HERBERT K. SAXE
Treasurer
MYRON MacLEOD, Advertising Mgr.
PRENTICE C. FORD, Asst. to President

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BRANCH OFFICES
Daily News Building, Chicago
TOM DIX, Vice-President
648 Hanna Building, Cleveland
GEORGE S. CONOVER, Vice-President
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DUNCAN A. SCOTT, Representative

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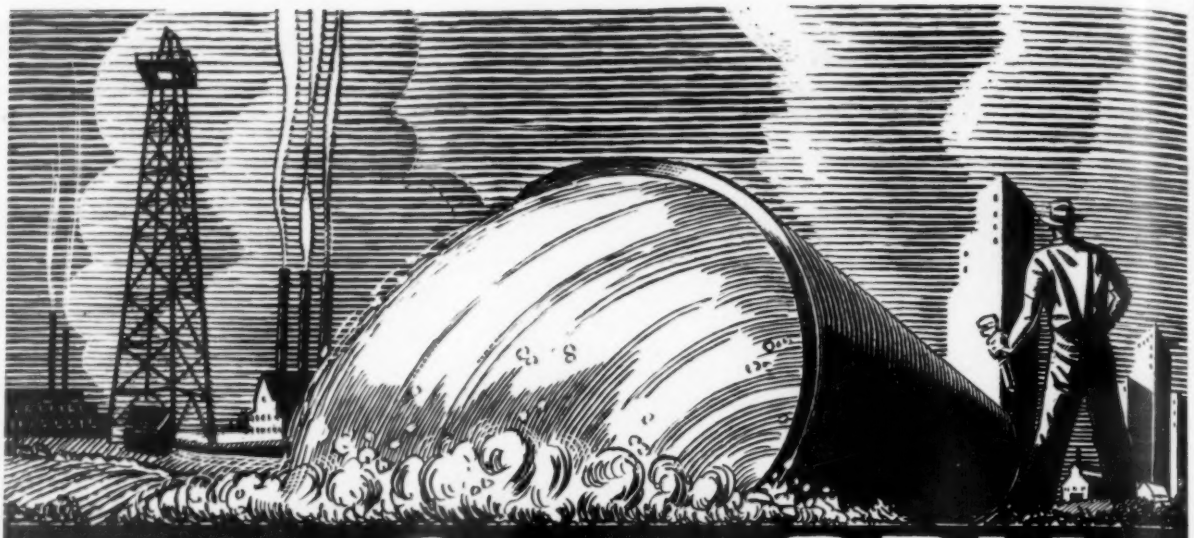

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The City the Hope of Democracy

Local Government and World Peace

THE observation by James Russell Lowell that "compromise makes a good umbrella but a poor roof" long antedates the umbrella of Prime Minister Chamberlain. But the maxim still holds. Whatever may be the immediate outcome of present efforts to maintain world peace by compromise, the building of stormproof mental and moral shelters against world anarchy is the yet unsolved task of democratic statesmanship.

As a spokesman for municipal officials and local civic organizations, THE AMERICAN CITY has no direct concern with international problems as such. But in the present crisis there is need for emphasis on the part which local government can play in the preservation of democracy and the promotion of just and amicable human relations.

The thought, of course, is not a new one. "The City: The Hope of Democracy" was the challenging title of a book by Frederic C. Howe published in 1905.

James Bryce, author of "The American Commonwealth," emphasized in his "Modern Democracies" (1921) his agreement with the maxim that "the best school of democracy and the best guarantee for its success is the practice of local self-government." In his concluding chapter on "The Future of Democracy," Viscount Bryce said:

"The rule of Many is safer than the rule of One—as Cavour said, however faulty a legislative chamber may be, an ante-chamber is worse—and the rule of the multitude is gentler than the rule of class. However grave the indictment that may be brought against democracy, its friends can answer, 'What better alternative do you offer?'

"Encouragement may be found in the reflection that such moral progress as history records has been made chiefly in the way of raising the sentiments and standards of the average man. Whereas in the realms of abstract thought and in those of science and of art it is to the great intellects that the world looks, popular government lives and prospers more by the self-restraint and good sense and good-will of the bulk of the nation than by the creative power of great intellect. . . .

"Less has been achieved than they expected, but nothing has happened to destroy the belief that among the citizens of free countries the sense of duty and the love of peace will grow steadily stronger."

Sixty years ago Henry George—the centenary of whose birth occurs this month—wrote in "Progress and Poverty":

"In our time, as in times before, creep on the insidious forces that, producing inequality, destroy Liberty. On the horizon the clouds begin to lower. Liberty calls to us again. We must follow her further; we must trust her fully. Either we must wholly accept her or she will not stay. It is not enough that men should vote; it is not enough that they should be theoretically equal before the law. They must have liberty to avail themselves of the opportunities and means of life; they must stand on equal terms with reference to the bounty of nature. Either this, or Liberty withdraws her light! Either this, or darkness comes on, and the very forces that progress has evolved turn to powers that work destruction. This is the universal law. This is the lesson of the centuries. Unless its foundations be laid in justice, the social structure cannot stand."

The Battleground of Democracy

THE title of the National Resources Committee's 1937 report—"Our Cities: Their Role in the National Economy"—was significant. Pointing out that the city has seemed at times the despair of America, but at others to be the Nation's hope, the battleground of democracy, this report said:

"The nation cannot flourish without its urban-industrial centers, or without its countryside, or without a sound balance between them. City planning, county planning, rural planning, state planning, regional planning, must be linked together in the higher strategy of American national planning and policy, to the end that our national and local resources may best be conserved and developed for our human use."

In relations among cities and states and nations there is need that public officials and civic leaders encourage competition of the kind that concerns itself with growth not merely in numbers and in wealth, but in those things which make a civilization really great. To quote G. Lowes Dickinson:

"The true way for one civilization to 'conquer' another is for it to be so obviously superior in this or that point that others desire to imitate it."

Such rivalry might employ for civic purposes the tremendous power of an impelling cause and the universal delight in a contest—the kind of competition which makes the individual feel that he can play a real part in the life of the community and which benefits all who take part in it.

Without involving unworthy compromises, such a program will be tempered by tolerance which recalls Carlyle's observation: "No man at bottom means injustice; it is always for some obscure distorted image of a right that he contends."

The times cry aloud for every possible extension of the good neighbor policy—among nations, among states, among cities and among neighborhoods and racial groups within cities. In her new book, "Let the Record Speak," Dorothy Thompson says:

"The democracies will never have peace until they know what kind of peace treaty they would like to write. When the democracies can write in their own minds a peace treaty which will give justice to the people of Germany and to the people of Japan and to the people of all nations and to all people everywhere who have hands, and minds, and energies which they want to use; when the democracies show themselves willing to relinquish one ounce of their national sovereignty in the interests of making an intelligently governed world; when money becomes a medium of exchange, and wealth is reckoned wholly in terms of goods produced and distributed; when it is clearly recognized that no section of this earth can go unused, or relapse into poverty, or have its resources wasted and exploited, without a loss, sometime, in some future, to every other part of the world; when everything that is creative, enterprising, productive, civilizing, is systematically supported by national and international policies, and everything that is parasitic, idle, wasteful, destructive, and greedy is systematically discouraged by those policies—then we may hope for positive peace."

Add Signal Value . . .

THAT HE WHO DRIVES MAY HEED

Signal Units on Post Beneath Sign

February, 1939, Revisions of the U. S. Manual on Uniform Traffic Control Devices recommend a red reflector signal indication on or beneath all Stop signs.

Stimsonite, type GCGN, red, reflector signal units, made of du Pont's "Lucite," meet this requirement. They emphasize the command to STOP by giving brilliant, red signal values to new or old Stop sign installations. They add the extra punch needed on Stop signs placed high, to be seen over tops of parked and passing cars.

Signal Units in Upper and Lower Panels

Type GCGN-1 Signal Unit Net Each $1.00

Type GCGN-6, 11-inch diameter, net each $8.70 Type GCGK-6, 7-inch diameter, net each $2.70

Other reflector signals, priced from 35 cents up, include low-cost obstacle markers and signals for slower, light-traffic roadways, and large, brilliantly effective signals to safeguard high-speed traffic at culverts, abutments, monuments, safety zones, parkways and dead-ends.

Write for information about these new, durable, higher-powered, lower-cost, reflector signals which are shipped complete with rust- and vandal-resisting hardware, ready for assembly.

SIGNAL SERVICE CORPORATION

ELIZABETH NEW JERSEY

Our Municipal Notebook

Only Sprays Can Keep a Tree

THE MANUFACTURERS EXHIBITION held in connection with the 15th National Shade Tree Conference in New York, August 22-24, was a significant reminder of the practical job of park and shade tree commissions, and the Miller Chemical and Fertilizer Co. of Baltimore sounded the keynote with "Raise it with fertilizer, save it with insecticide."

Shade trees don't just happen. The job of providing them and preserving them is as much a medical and surgical job as that of the department of hospitals. To perform it successfully, requires not only knowledge of tree physiology and pathology, but knowledge of the actual commercial fertilizers, chemicals, sprays, spraying machines, tools and tree-moving cranes that are available.

So well do the members of the National Shade Tree Conference recognize the importance of the implements of their profession, that one half-day of a crowded three-day schedule was given over to demonstration in Central Park of modern equipment for tree care.

This equipment falls naturally into four groups—chemicals and fertilizers, sprayers, power tools, and hand tools. The booths were more in the nature of surgical offices than exhibits. Information was suggested even more than the materials, and there was obviously a practical sympathy between the makers and the users. Two little items offered by the California Spray-Chemical Corporation, of Richmond, Calif., and Elizabeth, N. J., have permanent usefulness to all park departments. One is a compatibility chart for aqueous sprays showing dangerous, futile and wasteful combinations. The other is The Plant Doctor's Garden Spray Guide, describing sap-sucking, chewing and soil insects, foraging pests, rodents and weeds, and their control, and naming the pests peculiar to each of a long list of flowers, plants, bulbs, vines, shrubs, lawns and fruit and shade trees. The General Chemical Co., of New York, displays a Department of Agriculture map showing the spread of the Japanese beetle from a little spot in New Jersey, to Maine, Ohio and Virginia. The changing aspect of the insect problem and the need for chemical research was pointed out by J. S. Houser of the Ohio Agricultural Station. "There is some evidence that the insects themselves recognize the fact," says Mr. Houser, "as is indicated by the following personal experience. In the pew in front of me sat a man whose head was very bald. A mother fly and her daughter were strolling thereon, and I heard the mother remark: 'How things change, my dear! When I was your age this was a mere footpath.'" Quite alive to the needs are the Chipman Chemical Co., of Bound Brook, N. J., Dow Chemical Co., of Midland, Mich., Grasselli Chemical Co., and G. B. Pratt Co., of New York, as well as Standard Agricultural Chemicals, Inc., of Hoboken, N. J., and Peat Import Corp., of New York.

The Central Park demonstration showed a power sprayer killing beetles on the top of a 90-foot poplar. The reach of these sprayers necessitated designing for 600 to 800 pounds pressure and even more, with the inevitable streamlining which provides a handsome as well as efficient machine. John Bean Mfg. Co., of Lansing, Mich., offers numerous types, each in several sizes for mounting on motor trucks or attaching to tractors. Park officials do not hem and haw and dicker over whether to spray or not to spray; they must do, or their trees die; and present with the machines are the Hardie Mfg. Co., of Hudson, Mich., and the Friend Mfg. Co. of Gasport, N. Y. New York City has just purchased six of the Fitzhenery-Guptil sprayers mounted on skids for placing on any truck. The Park Department uses them eight months of the year for spraying and in season also for watering.

P. K. Lindsay Co., of Everett, Mass., offers a portable compressor with air drill for tree feeding, with the slogan "Give 'Em Air!" This 175-pound hand-drawn machine develops 80 pounds pressure for operating air hammers, chisels, gouges, and drills for boring or breaking frozen ground and cutting roots in tree moving.

Trees have their ambulances. The newest model built by the Winch Division of Gar Wood Industries, Inc., Detroit, features a Gar Wood Mead Morrison winch with niggerhead, two speed forward and reverse, and power take-off. This unit can be erected on the truck platform body in ten minutes, and then removed from the truck body to permit the use of the truck for general hauling. At Central Park a Butts tree mover picked up a 45-foot Norway maple, carried it across the field and lowered it in a freshly dug hole.

Penny Parking

THE OFFICIALS AND PEOPLE of the city of New Haven, Conn., are to be congratulated on their decision to try penny parking, and on its success as described on page 49 by their Police Chief, Philip T. Smith, who is a member of the Executive Committee and a past President of the International Association of Chiefs of Police.

The purpose of parking meters, as frequently defined by this magazine, is to relieve parking congestion, which invariably they do. It is apparent by their very provision that their purpose is not to discourage parking but to make it orderly and more convenient and agreeable. Indeed, their function is to provide the greatest number of parking spaces at the curb for the greatest number of parkers.

Some cities have refrained from installing parking meters solely because of the 5-cent fee. The objections have been called by many names, but nearly all of them simmer down to the fee. Cities operating parking meters now charge anywhere from nothing for 10 minutes, 1 cent for 12 minutes, to 5 or even 10 cents for longer periods.

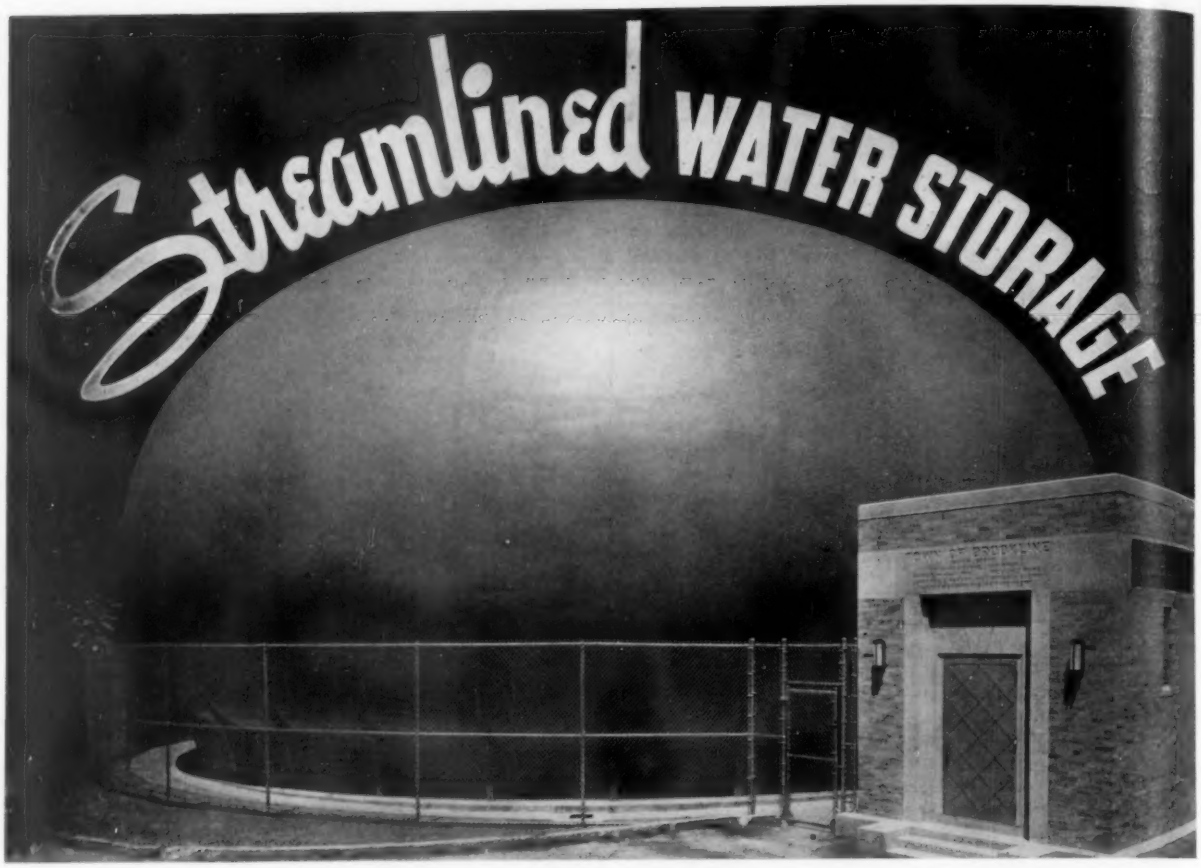
The questions have been: Will a penny pay for the purchase and operating costs of the meters? Won't a penny-charge result in the curb spaces being jammed full all the time, with the usual attendant cruising and double-parking evils?

These questions do not have to be answered theoretically in New Haven. The penny rate for 15 minutes, and another penny for 15 minutes more, keep the shoppers moving, for at that rate they don't mind making several stops in the business district instead of trying to do all their errands from one parking space.

First Nation-wide Housing Census in 1940

NEXT YEAR, for the first time in history, every house in the United States will be counted and classified according to type, facilities, age, state of repair, number of occupants, value, rental, and mortgage status.

Under the terms of a bill (S. 2240) introduced by Senator Wagner of New York, the housing tabulation will be made by the Bureau of the Census in connection with the decennial population check-up. In the final hours of the last session, Congress appropriated $8,000,000 for the gathering of this housing information to guide both public and private activity.



BECAUSE of its pleasing, modern appearance, this steel spheroid was chosen to store 1,660,000 gallons of water for residents of Brookline, Mass., well-known Boston suburb. In purpose, this Hortonspheroid merits singular distinction by being the only structure of its kind ever installed for water storage. It is similar to the standard Hortonspheroid which has been used for years to store natural gasoline and volatile liquids under pressure for the oil industry. The structure is slightly different, however, as it is not built to withstand internal pressure.

Utilizes Material Economically

The original Hortonspheroid design is based on building a structure in the shape that a flexible container such as a rubber bag would take if filled with liquid and subjected to a specified internal pressure. This design places all of the metal in the shell, even in the roof and bottom, in tension. The minimum amount of metal is used to retain the shape of the structure, as it is built in the natural form it would take if no stiffening or supporting metal were used.

Low Range in Head

In addition to its streamlined appearance, the Brookline spheroid was specified because it provides a large amount of storage within a relatively low range in head. This was an important factor here, because of an ordinance which restricted the maximum height of any structure erected in this high-value residential section.

Plates Pickled

Capitalizing further on modern methods and equipment, the Brookline Water Board decided to have the plates from which the tank is built pickled by the phosphoric process, which removes all mill scale. The tank was then coated with a special paint. This process also provides an improved bond between the metal and the paint, that reduces maintenance costs by requiring less frequent repainting.

In addition to special structures, we build standard elevated tanks, steel reservoirs and plate work of all types. We shall be glad to furnish information or estimating data on any installations of this kind you may be contemplating. Write our nearest office.

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New York.....3308-165 Broadway Bldg.	Boston.....1501 Consolidated Gas Bldg.	Houston.....2919 Main Street
Cleveland.....2236 Rockefeller Bldg.	Birmingham.....1502 N. Fiftieth Street	Tulsa.....1625 Hunt Bldg.
Detroit.....1501 Lafayette Bldg.	Dallas.....1406 Liberty Bank Bldg.	Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Supply and Purification

City Furnishes Meters and Tests Regularly

THE WATER DEPARTMENT of Madison, Wis., furnishes a water meter for each consumer within the city limits without cost to the consumer. The meter is located upon a shelf about 30 inches from the floor, immediately inside the front wall of each building, with a control valve installed on the inlet side.

The meter repair organization consists of one service truck and two men in the repair shop. There are approximately 14,500 meters in service at the present time. About 2,000 meters are removed and tested annually. It was the former policy to test meters every four years, but experience indicates that this is not necessary. In domestic installations all meters are tested when they have registered 100,000 cubic feet, all 2-inch meters are checked at least every two years, and 4-inch meters at least once a year.

The meters are maintained without charge to the consumer, except when they are damaged by frost or hot water. The cost of changing and repairing a meter is approximately $3.00, or about 25 cents per meter in service per year. The system is practically fully metered, there being only about a dozen locations where the cost of maintaining a meter is greater than the cost of the water furnished, and in these cases the Department is locating meters in meter boxes at the curb, with the idea that the system eventually will be 100 per cent metered.

L. A. SMITH,
Supt., Madison, Wis., Water Dept.

Rebates Are Dividends to City Water Users

OVER TWENTY YEARS AGO the Woodstock, Ont., Public Utilities Commission adopted the principle of paying for ordinary extensions to the water system out of surplus earnings instead of issuing debentures for these and turning the surplus over to the City Council as had been done in previous years. The result is that the city now has a plant valued at $448,886, less a depreciation reserve of $70,800, or a net value of $378,086, with an outstanding debenture debt of only $15,360 (which will be retired in 1942) less a sinking-fund of $12,338, or a net debt of $3,022.

Since 1930 we have made five rebates to our consumers, both domestic and commercial, totaling approximately $43,000. The last rebate, made in July, 1939, was 50 per cent of the half-yearly flat domestic accounts, and 100 per cent of the quarterly metered commercial and industrial accounts, amounting to about $11,000.

Our reason for making a rebate when the surplus warrants doing so, instead of reducing the rates, is that the rates already are very low and we have had considerable extension work for a few years which we were anxious to finance from income.

We believe the surplus, if any, belongs to the consumer who produces it and should be used for the improvement of the system and, if it is still excessive, it should be returned as a credit on the consumer's water bill, rather than turned over to the city treasury for general purposes. This principle has met with the approval of the majority of the citizens of Woodstock and it is expected that the Public Utilities Commission will continue along the same lines.

YEARLY FLAT RATES

For first tap	$4.00
Each additional tap	.50
Stationary wash-tubs	.50
Bath in private house	1.50
Each additional bath	.50
Closet in private house	2.00
Each additional closet	1.00
Horses, each	1.00
Cows, each	1.00
Minimum rate per year per service	4.00

Above rates subject to 20 per cent prompt payment discount.

Water is supplied free for building purposes and installation; maintenance and supplying of water to fire hydrants is billed to the city at $15 net per year. The flat rates charged consumers for water supplied for sprinkling lawns are:

2,000 sq. ft. or less	$3.20 net
4,000 " "	4.00 "
6,000 " "	4.40 "
Every additional 1,000 ft.	.20 "

Hotels, boarding houses, stables, factories, bakeries, restaurants and other places where large quantities of water are used are metered, and a charge of 10 cents per 100 cubic feet is made with the following discounts:

	Cash Discount
First 15,000 cu. ft. per quarter	10%
Next 10,000 " " " "	10 & 10%
" 25,000 " " " "	20 & 10%
All over 50,000 " " " "	30 & 10%

The minimum rate for metered services is $8 per year net. A cash discount is allowed on bills paid on or before the 15th of the month in which the bill is issued. The rates quoted above without the prompt-payment discount give the following rates on a sliding scale:

First 15,000 cu. ft. per quar.	$ 14.4 per 100 cu. ft.
Next 10,000 " " " "	13.1 " " " "
" 25,000 " " " "	11.61 " " " "
Balance	10.17 " " " "

With all discounts, including the discount for payments on or before the 15th of the month, the actual cost of water to industrial consumers is:

First 15,000 cu. ft. per quarter	9c per 100 cu. ft.
Next 10,000 " " " "	8.1 " " " "
" 25,000 " " " "	7.2 " " " "
Balance	6.3 " " " "

J. E. ARCHIBALD,
Manager, Woodstock, Ont., Public Utilities Commission.

Cleaning Program for Evansville Water Main

APPROXIMATELY 551,047 feet of water main has been cleaned for the Evansville, Ind., Water Works Department under contract by the National Water Main Cleaning Co., New York City, since 1934. The sizes have ranged from 4-inch to 30-inch in diameter. This cleaning was initiated because of the large amount of silt deposited in the main from the raw river water that was pumped to the city prior to 1910. It was found that certain mains had to be re-cleaned because of the rapid build-up of incrustation which occurred when the water flowing through the main had a pH of 7.2 or less.

The results of the cleaning program show that 8,500 feet of 30-inch main running from the pumping station to Fulton Avenue, which previously had a Hazen & Williams coefficient C of 80, had a coefficient of 114 after cleaning. Likewise, 2,250 feet of 24-inch main had its coefficient increased from 64 to 112; 5,650 feet of 16-inch line increased from 63 to 119; 5,850 feet of 10-inch line increased from 50 to 108; and 1,400 feet of 12-inch line had its coefficient increased from 66 to 117. These records are based on a survey made by The Pitometer Co., of New York, for us in 1938.

Recently, the intakes and low-service mains at the water pumping and filtration plant were cleaned, and as a result of the cleaning the 12,000,000-gallon pump efficiency has increased from 30 to 35 per cent on the suction lift.

LOUIS A. GEUPEL,
Water Works Superintendent.

New England Water Works Association Convention Montreal, Canada September 12-15, 1939

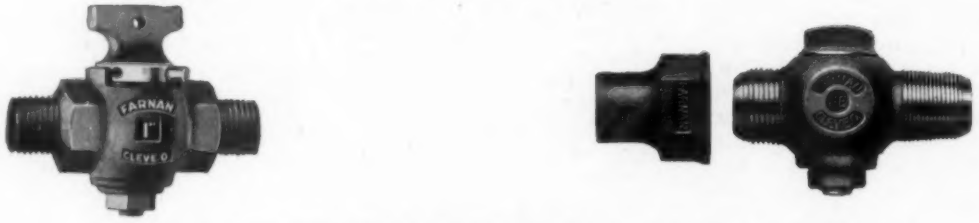
Read the 1939 Municipal Index for reference articles and hydrant statistics. See Water Works Section, page 239.

The **OLDEST** *Manufacturer of Water Brass Goods is*

FARNAN

Established 1852

WHERE THE ECONOMICAL PURCHASER BUYS THE BEST OBTAINABLE AT ANY PRICE FOR LESS



ALL OUR PRODUCTS ARE CAST FROM 85-5-5-5 INGOT

ACCURATELY MACHINED TO GAUGES
AND TESTED AT 200♯ HYDROSTATIC PRESSURE

STOPS—COUPLINGS AND FITTINGS
FOR ALL REQUIREMENTS

THE FARNAN BRASS WORKS CO.
CLEVELAND *Established 1852* OHIO

Sewerage and Sewage Disposal

Drainage Improved

FOR MANY YEARS Shamokin Creek in Shamokin Borough, Pa., has accumulated the culm or coal dirt from many of the local mines. Most of the sewers discharged into this creek, and the culm bank caused them to back up and also pooled sewage in the channel, causing unpleasant odors during the summer and a distinct menace to community health.

Already over ½-mile has been improved and the borough hopes to extend the work for a distance of approximately two miles. An inverted stone bottom has been placed in the entire creek channel, with a lower invert at the center, and sloping sides so that the water always flows in the center and carries with it any refuse that reaches the creek. Every sewer line has been placed beneath the stone bottom, with the outlets in the center of the channel, so that all sewage is carried away by the flowing water.

Work on this was begun late in 1937 as a WPA project and is to be continued with the addition of stone retaining walls the entire length of the stream. Harry F. Reinhardt is Borough Engineer.

I. B. KRAMER.

The new paved channel of Shamokin Creek prevents nuisances from deposits of culm and sewage

Connecting Laterals to Corrugated Sewers

THE USE of corrugated pipe lined with a bituminous material for storm and sanitary sewers in many cities has become quite common. Some difficulty has been experienced in making connections for laterals and for house connections. We report and illustrate a method which has proved very successful. Though this method has not been generally adopted, those who have seen these connections made consider it a vast improvement over the old methods of torch cutting and welding.

A saw made by the Misener Manufacturing Co., Syracuse, N. Y., powered with an ordinary electric drill of sufficient power to handle a 1-inch bit, readily cuts a hole as shown. Then a saddle branch is laid over the hole and bolted in place. The saddle branch consists of a segment of corrugated pipe curved to the diameter of the main line through which the hole has been cut and to which has been welded a short stub of corrugated pipe of the required diameter of the lateral. The saddle is provided with bolt holes which are used for centering holes in the main line which have to be drilled.

Maintenance of Sewers in Oak Park, Ill.

THE COMBINED storm-water and sanitary sewer system of the village of Oak Park is maintained by the Street Department. Maintenance consists of cleaning the main sewers whenever necessary, particularly those with a flat grade. All catch-basins on the sewer system are cleaned when necessary, and in some locations the basins have to be cleaned twice a year.

Cleaning of the main sewers is done with a sewer-cleaning machine, consisting of rotating flexible steel rods with cutting and cleaning tools. The catch-basins are cleaned with an Elgin Auto Eductor mounted on a Diamond T chassis.

In 1938, in 101 cases, the Street Department had to rod out and clean out sewer stubs, owing in half the locations to stoppage by poplar tree roots. Opening house drains cost $704.35.

CLEANING CATCH-BASINS, OAK PARK

Labor	$1,599.25
Superintendence	119.86
Trucks	442.92
Repairs to equipment	182.25
	$2,344.28
Catch-basins cleaned	2,026
Cu. yds. of dirt removed	1,439
Cost per catch-basin	$1.157

Steps in Making a Lateral Connection to a Corrugated Metal Sewer Pipe

BAKER SNOW PLOWS

have cleared city streets for 31 *years*

Baker Snow Plow owned by city of Erie, Pa.

Baker Snow Plows have been clearing the streets of America's leading cities since 1908. Naturally city officials rely on them for dependable performance. Bakers were the first to have safety tripping blades, hydraulic control and numerous other advanced features. And Baker engineers have made today's plows far more efficient and durable to keep pace with modern motive power.

Baker Plows are available in 21 models in "V" and tripping blade types for any make or capacity of motor truck, each with a truck hook-up built for easy and snug attachment. The new hydraulic lift gives you convenient, positive control. There are outstanding models, too, for leading tractors. Coast to coast acceptance gives positive assurance you will be more than satisfied with Bakers.

Write for Baker Snow Plow Bulletins. Give name and model of truck or tractor on which you wish to mount snow plow.

THE BAKER MFG. CO.
503 Stanford Ave.
Springfield, Illinois

America's Oldest Manufacturers of Snow Plows for Streets and Highways.

One of several hundred Baker Snow Plows owned by the city of New York.

A FEW OF THE IMPORTANT CITIES USING BAKER PLOWS

Akron, Ohio
Altoona, Pa.
Ann Arbor, Mich.
Augusta, Maine
Billings, Mont.
Boston, Mass.
Bristol, Conn.
Chicago, Ill.
Cleveland, Ohio
Duluth, Minn.
Erie, Pa.
Gary, Ind.
Grand Rapids, Mich.
Jersey City, N. J.
Kansas City, Mo.
Lincoln, Nebr.
Lynchburg, Va.
Milwaukee, Wis.
Nashua, N. H.
New Haven, Conn.
New York, N. Y.
Oak Park, Ill.
Pawtucket, R. I.
Providence, R. I.
Provo, Utah
Racine, Wis.
Reno, Nev.
Richmond, Va.
Roanoke, Va.
Royal Oak, Mich.
St. Paul, Minn.
Salt Lake City, Utah
South Bend, Ind.
Worcester, Mass.
Yonkers, N. Y.

BAKER SNOW PLOWS

Street Cleaning

COURTESY OF LEAGUE OF MINNESOTA MUNICIPALITIES

The New Street Sweeper Used in Rochester, Minn.

Cities Increase Budgets for Street Cleaning

AMERICAN cities will spend as much or more for street-cleaning services during 1939 as they did in 1938, according to the American Public Works Association, which states that of 70 cities reporting, 34 have increased their street-cleaning appropriations, 9 will spend the same this year as last, while 19 have reduced their appropriations for this activity.

Comparisons between appropriations should not be made without giving proper consideration to such factors as the purchase of new equipment, differences in wage levels, degree of service, mileage of streets, and character and topography of cities. A difference in wage scales also may cause a wide variation in costs. One northern city, for example, pays its street cleaners 75 cents an hour, while in a southern city the scale for this type of work is about 25 cents an hour.

Snow removal plays an important part in determining a city's street-cleaning expenditures. Forty-three cities appropriated specific sums for this purpose, while others include snow-removal costs in the regular street-cleaning budget or make emergency appropriations when required. A number of northern cities spend as much or more for snow removal than for regular street-cleaning activities during the year. Rochester, N. Y., for example, appropriated $360,000 for this purpose. This is $136,000 more than was appropriated for 1939 street-cleaning activities. Other snow-removal appropriations for 1939 include: Minneapolis, Minn., $190,000; St. Paul, Minn., $65,000; Brookline, Mass., $55,000; Hartford, Conn., $50,000; Lansing, Mich., $30,000; Sheboygan, Wis., $20,000; and Kalamazoo, Mich., $15,000.

Minnesota City Cleans Streets with Machine

THERE are 35 miles of paved streets in Rochester, Minn., 6 miles of which are downtown business streets and 29 miles residential streets. In order to make it possible to clean the business section every other night and the residential portion at least twice a week, the City Council purchased a small Austin-Western Patrol Sweeper at a cost of $3,750, in the fall of 1938. With this machine, sweeping operations start at midnight, when traffic and parking are at a minimum.

The new sweeper has a sprinkler at the head of the machine on the curb side to lay dust. This is followed by a rotating broom on a vertical axle which throws the dirt out and back against a cylindrical brush with a horizontal axis, which in turn throws the dirt upward into the hopper. When the hopper is filled, it is dumped in a pile at the curb and the dirt is picked up shortly after by a truck. This new machine takes care of a swathe of about 5½ feet where more than 90 per cent of the street dirt is located. It is readily manipulated around parked cars.

At present the machine is operated at an equipment rental rate of $1.40 per hour, which it is believed will cover all equipment costs, including operation, maintenance and depreciation. During the short time this one-man machine has been in operation the average cost per gutter-mile has been about 40 cents.

ARLEIGH SMITH, City Engineer.

Important National Conventions for City Officials:

September 12-15—Montreal, Ont. New England Water Works Association

October 9-11—Pittsburgh, Pa. American Public Works Association

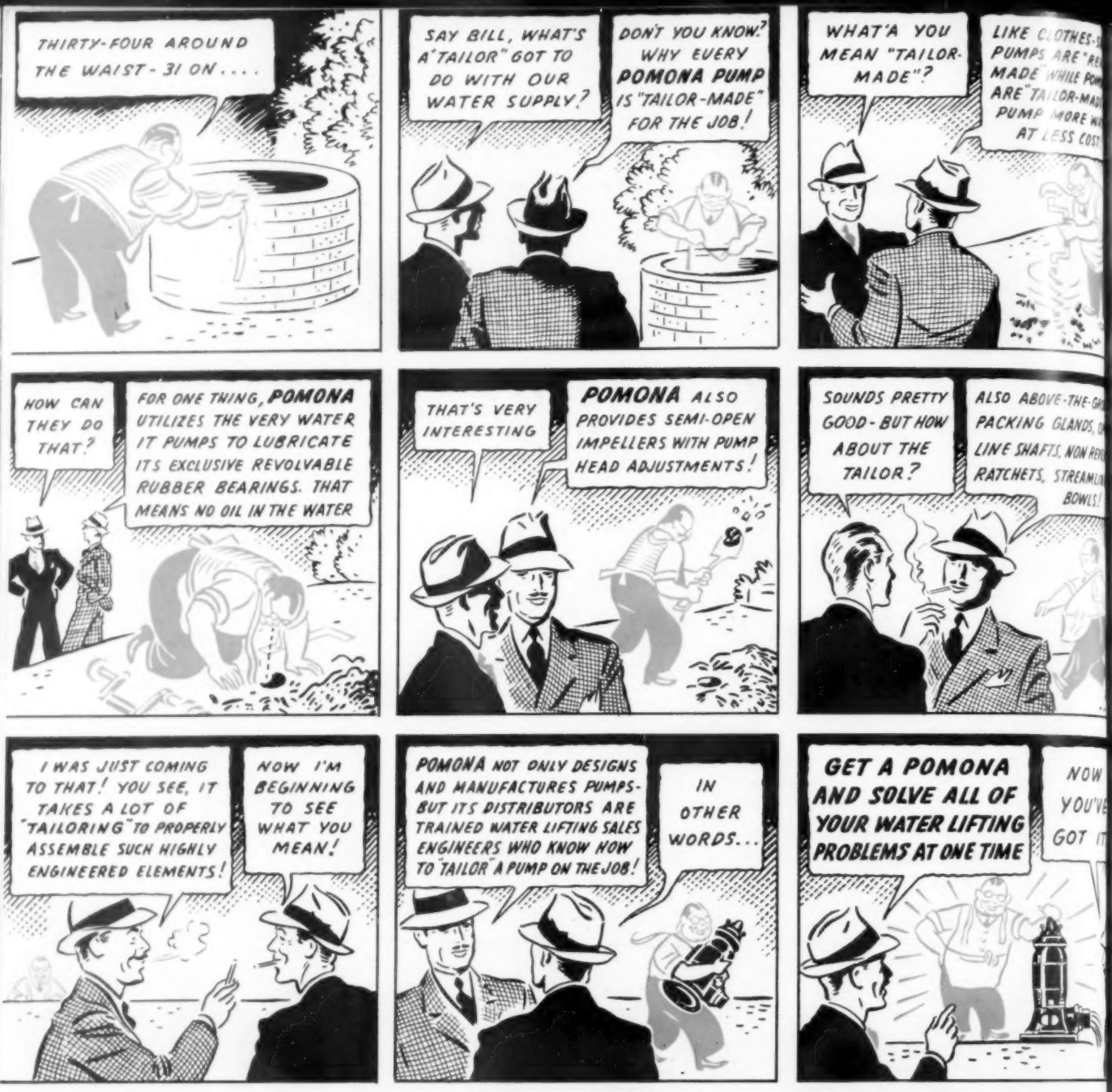
October 9-12—Detroit, Mich. International City Managers' Association

October 17-20—Pittsburgh, Pa. American Public Health Association

A Forward Look to Winter!

COURTESY OF ROBERT LAY AND THE NEW YORKER

"No, No, McNamara. Just That White Fluffy Stuff on Top"


THIRTY-FOUR AROUND THE WAIST - 31 ON....
SAY BILL, WHAT'S A "TAILOR" GOT TO DO WITH OUR WATER SUPPLY?
DON'T YOU KNOW? WHY EVERY POMONA PUMP IS "TAILOR-MADE" FOR THE JOB!
WHAT'A YOU MEAN "TAILOR-MADE"?
LIKE CLOTHES-
PUMPS ARE "RE
MADE WHILE POM
ARE "TAILOR-MAD
PUMP MORE W
AT LESS COST
HOW CAN THEY DO THAT?
FOR ONE THING, POMONA UTILIZES THE VERY WATER IT PUMPS TO LUBRICATE ITS EXCLUSIVE REVOLVABLE RUBBER BEARINGS. THAT MEANS NO OIL IN THE WATER
THAT'S VERY INTERESTING
POMONA ALSO PROVIDES SEMI-OPEN IMPELLERS WITH PUMP HEAD ADJUSTMENTS!
SOUNDS PRETTY GOOD - BUT HOW ABOUT THE TAILOR?
ALSO ABOVE-THE-GR
PACKING GLANDS,
LINE SHAFTS, NON REV
RATCHETS, STREAMLI
BOWLS!
I WAS JUST COMING TO THAT! YOU SEE, IT TAKES A LOT OF "TAILORING" TO PROPERLY ASSEMBLE SUCH HIGHLY ENGINEERED ELEMENTS!
NOW I'M BEGINNING TO SEE WHAT YOU MEAN!
POMONA NOT ONLY DESIGNS AND MANUFACTURES PUMPS- BUT ITS DISTRIBUTORS ARE TRAINED WATER LIFTING SALES ENGINEERS WHO KNOW HOW TO "TAILOR" A PUMP ON THE JOB!
IN OTHER WORDS...
GET A POMONA AND SOLVE ALL OF YOUR WATER LIFTING PROBLEMS AT ONE TIME
NOW YOU'VE GOT IT

The only sure way to learn at first hand that Pomona WATER-LUBRICATED pumps can lower your operating and maintenance costs, provide your municipality with clean, uncontaminated water, is to call in a Pomona dealer-engineer. While the "Pomona Tailor" symbolizes one of Pomona's outstanding characteristics, that of "tailor-making" each installation to fit the individual requirements of the job at hand, this is but one of many exclusive features which has built this great water-lifting business. Pomona pumps will reduce your over-all cost per gallon of water lifted, keep water schedules running smoothly. Ask your water superintendent what it means to him to be free of oil lubrication in underground water-lifting operation. Ask him, too, if Pomona's semi-open impellers, with adjustment above ground, accessible packing gland located in the motor head, wont assist him in keeping his equipment functioning at highest efficiency over the longest period of time. And then measure the result of Pomona's exclusive features, its vast water-lifting experience that today stretches over nearly four decades and the civilized globe itself, against your municipal problem. Call a Pomona dealer-engineer. He'll make a quick survey and comprehensive one of your water-lifting situation. In either case, his judgment can be relied upon. He'll tell you how much it will cost to produce the water you need, what you will save — and he will be glad to assist your engineer with a wealth of valuable, first-hand comparative data.

Most present-day municipalities offer a challenge to obsolete water-lifting methods such as underground oil lubrication. Pomona's exclusive, WATER-LUBRICATED revolvable rubber bearing feature is but one of many important factors that mean dollars saved because of freedom from repair.

POMONA

Water-Lubricated

PUMPS

Master of the problem of water lifting, Pomona provides a margin of engineered safety that spells long life and maximum performance under any and all pumping conditions, does away with expensive "underground overhead", provides an amazing economy of operation.

ST. LOUIS, MO. POMONA, CALIF.

Public Safety

Milton Fights Fire and Movies Pay Cost

When Georgetown, Del., recently purchased a new Mack 1,100-gallon pumper, the Fire Department of Milton, Del., 1,200 population, acquired the 8-year-old 750-gallon pumper it replaced, and has fitted it with a 350-gallon tank for use at country fires. The Milton truck carries 2½-inch hose for regular use, 1½-inch hose for the tank, and 1-inch hose for the 150-gallon booster.

The present Milton volunteer department consisting of Victor Spencer, Chief, and 28 men, is fourteen years old. In addition to the pumper with tank, there are two American-LaFrance pumpers: No. 1, 750 gallons, ten years old; and No. 2, 900 gallons, eight years old.

On August 13, 1909, the business district was destroyed by fire owing to lack of water, and five years later a municipal water-works system was installed at a cost of $19,100, now valued at $50,000. It includes a 76,000-gallon Pittsburgh-Des Moines steel tank and electric-driven Worthington pumps at four artesian wells, furnishing 60 pounds pressure on the town hydrants.

The Fire Department recently erected a $50,000 air-conditioned moving-picture theater, which has a $15,000 mortgage and $1,200 fixed charges, and is being liquidated at the rate of $2,000 per year from an income of $5,500.

Milton has 27 industries, attracted by a tax rate of 40 cents per $100, with no machinery or personal taxes, native-born labor, and cheap water and transportation.

Noon Fire-Alarm Test at Harrisburg

Promptly on the dot of noon at Harrisburg, Pa., a test alarm is sent to all fire stations, and many citizens check their watches by this noon test. The fire-alarm operator never knows which of the 144 boxes is going to be tested, and is therefore on his toes.

Today it is Box 141 on No. 5 of the six circuits of the semi-automatic and automatic Gamewell system. Suddenly this box registers two taps in headquarters. The operator answers with two taps unless there is a reason why he does not want this box pulled, when he would answer with four or more taps and the tester would get headquarters by telephone. On receipt of the two taps, the operator sends at exactly 12 noon *one* round of the alarm to the fire-houses.

The most recent innovation is a Rectox rectifier installed in 1936, which, set at the system's 100 milliamperes, transforms the 110-volt alternating line current into direct current to operate the fire-alarm lines and feed the batteries on trickle charge. In the event of a shut-down, current is immediately taken from the batteries, and the trouble is signaled by a light and a bell. In the case of further trouble, this time with the batteries, a pair of General Electric motor-generator sets are available. Additional batteries and another pair of motor-generators furnish standby service for the police telephone and telegraph service.

Newark, N. J., Police Motorcycle in Business District

The Police Motorcycle Stands for Law and Order

The Police Officer, in preventing the wrong things from happening and keeping the right things happening with the least delay and confusion, must command the fear of lawbreakers and the cooperation of the law-abiding. "The motorcycle officer," says Traffic Inspector M. J. Bolger of Newark, N. J., "seems to receive more public respect and obedience than does the officer in any other guise. Newark has three squads of ten men each, operating thirteen solo, twenty side-car and four escort Harley-Davidson motorcycles. In addition to patrolling the streets and highways, including five miles of Route 25 carrying 64,000 vehicles per day, they render first aid, and escort for funerals, parades, payrolls and bank messengers. One motorcycle and side-car is assigned to two officers who visit banks and financial houses in the business district at irregular times during the business day to prevent loitering and possible hold-ups. The radio cars perform this duty outside the business district." The motorcycle is flexible and keeps the patrol car free to patrol the ways outside the business district, and the public knows instantly what it means.

Rutgers Expands Safety Courses

When the Bureau of Public Safety at Rutgers University, New Brunswick, N. J., was organized, in July, 1937, one of the first steps this organization undertook was to start the development of well-rounded, long-term courses. During our first year of operation a thorough study was made of the two-week intensified courses that were conducted, and during the past academic year these short courses were extended into those of the long-term nature.

With such success did these long-term courses meet, that during this, the third year of the Bureau, we are offering eight full semester courses in criminal law, traffic enforcement and engineering, criminal investigation and public speaking for police, causes and prevention of juvenile delinquency.

Lawrence B. Tipton,
Head, Bureau of Public Safety, Rutgers University, New Brunswick, N. J.

4000 YEARS

OF WATER PURIFICATION

In an old Sanskrit manuscript, containing a collection of medical lore, appears this advice: "It is good to keep water in copper vessels, to expose it to the sunlight, and filter it through charcoal." The document was written about 2,000 B.C.

These days, the modern purifier AQUA NUCHAR Activated Carbon is many times more powerful than ordinary charcoal as a purifying agent, and is used by more than 1,100 cities throughout the United States to remove unpalatable tastes and odors in raw water supplies.

The cost of furnishing palatable drinking water through the use of AQUA NUCHAR Activated Carbon is so negligible that every purification plant should consider its continuous use throughout the entire year.

INDUSTRIAL CHEMICAL SALES

DIVISION WEST VIRGINIA PULP AND PAPER COMPANY

NEW YORK CITY	CHICAGO	PHILADELPHIA	CLEVELAND
230 Park Avenue	35 E. Wacker Drive	1322 Widener Bldg.	417 Schofield Bldg.

NUCHAR

AQUA NUCHAR

During September we hope you will remember to mention THE AMERICAN CITY.

Vol. LIV, No. 9 The American City SEPTEMBER, 1939

A New Water-Softening Plant for Shelby, Ohio

Precipitator Saves Chemicals; Design Uses Old Pumps and Clear Well; New Elevated Tank Built

By Rollin F. MacDowell
Consulting Sanitary Engineer,
Cleveland, Ohio

THE city of Shelby has recently placed in operation a modern, chemical-precipitation water-softening plant of the lime-soda type which includes as one of its principal features a Spaulding "Precipitator."

Shelby is a city of 6,800 population located in north central Ohio. It is a prosperous community containing several sizable industries. It has a modern and efficiently operated municipal light and power plant, a complete sewerage system and sewage-treatment plant, as well as a municipally owned water-works system. The city has been blessed for several years with a high-class administrative organization, and its citizens are largely civic-minded and cooperative.

The Old Water Works

The original water works was constructed in 1897 by a locally owned private utility, but was purchased by the city in 1934. The source of the supply is two dug wells, 20 feet in diameter and 45 feet deep, in heavily water-bearing gravel deposits which provide an ample quantity of water. Unfortunately however, the water, though satisfactory from a bacterial standpoint, is very hard, the water from one of the wells having 650 and the other 848 parts per million of total hardness. It also has a high iron content, 8.0 parts per million.

An iron-removal plant, consisting of aeration, settling and gravity filtration, was constructed in 1917 but was of insufficient capacity for the present consumption requirements and was abandoned when the new water-softening plant was placed in operation.

The iron-removal plant discharged into a clear well, of 220,000 gallons capacity, from which the high-service pumps took their suction. The bottom 120,000 gallons storage in this basin is utilized in connection with the new softening plant and pumping station, being interconnected with a small clear well at the softening plant, which serves as a suction basin for the high-service pumps.

The old pumping station, which originally contained steam-operated pumps, and was later converted to an electric motor-driven pumping station, has also been abandoned, and the pumping equipment has been moved to the new building which houses the water-softening plant. These pumps consist of one 800 and one 900 to 1200 gpm unit, discharging into the distribution system against 140-foot head. The pressure was, prior to the construction of the recent improvements, equalized by a 210,000-gallon total capacity standpipe, located near the old pumping station, only 146,000 gallons of which is available for effective fire protection pressure. The recent improvements include a new 300,000-gallon capacity elevated tank located near the commercial district. The standpipe

Exterior of the New Water-Softening Plant at Shelby

The Coke Aerator, at the Right, and the Spaulding Precipitator in the Foreground

will be kept in service to supplement the new elevated storage.

The 1938 records show an average daily water consumption of 641,000 gallons, and a maximum daily consumption of 1,200,000 gallons. It is anticipated that both the domestic and the industrial consumption will increase materially, with the furnishing of soft water, for one industry alone, the Shelby Tube Company, is expected to increase its use of the municipal supply by 150,000 gpd or more.

Elevated Tank

In determining the capacity of the new elevated tank, the following assumptions were made. The minimum fire consumption requirements of the National Board of Fire Underwriters for cities the size of Shelby, in the eighth insurance rate classification, is 1,700 gpm for 10 hours, or 1,020,000 gallons, plus the maximum domestic consumption requirement during the same period, which is estimated at 933 gpm for 10 hours, or 560,000 gallons, making a total minimum fire consumption requirement of 1,580,000 gallons in 10 hours. To meet this demand, the new plant will supply the following quantities of water:

	Gallons
Clear well and suction basin (min.)	132,000
Low-service pumps (limited by max. filter rate) 1,750 gpm x 600 min.	1,050,000
Old standpipe (available fire storage)	146,000
New elevated tank	300,000
Total	1,628,000

This available fire protection storage provides a leeway, in case the standpipe or the new elevated tank is not entirely full when the fire starts.

The new elevated tank is of the dome roof, elliptical bottom type, with a 4-foot diameter riser. It is supported by a six-leg tower and has an overflow pipe carried to an adjacent storm sewer, and a blow-off and drain at the bottom. On account of unstable soil conditions, all foundation piers were supported by wood piles, computed for 2 tons per square-foot load and requiring 16 piles under the outer piers and 20 piles under the center pier, each about 24 feet in length. The total concrete in the piers was 186 cubic yards.

A feature of the elevated tank was the inclusion in the contract of an electric device for preventing the formation of rust and the resulting corrosion on the inside of the tank. The device, which was manufactured by the Rusta-Restor Corporation, consists of a carbon electrode, hanging down in the center of the elevated tank, and a rectifier (transformer) for changing the 110-volt alternating current to direct current of low voltage. The current passes from the electrode (annode) through the water to the steel tank, which becomes the cathode. This causes minute bubbles of gaseous hydrogen to collect on the wet surface of the tank, thus preventing the oxidation of the iron. The cost of this equipment, installed, was $300, and it is estimated that the operating cost for electric current will not be over 50 cents per month. The same or similar devices have been installed on a number of elevated tanks in Ohio and elsewhere and are reported to be successful in preventing corrosion and eliminating the painting of the inside of the tank every few years.

Softening Plant

The water-softening plant, which also removes the iron from the water, is of the lime-soda type and has a nominal capacity of 2 million gallons per day. The plant consists in general of an aerator, a reaction-settling tank (Spaulding Precipitator), a recarbonation basin, a sludge concentration tank, gravity mechanical filters, a clear water-suction basin, sludge lagoons, and a single-story building with 12-foot basement. The mechanical equipment includes recarbonation equipment, dry chemical feeders, sludge and supernatant liquor pumps, metering and automatic control devices and miscellaneous equipment.

Aerator

The water as it comes from the wells first passes through a coke tray aerator, 5 feet 10 inches x 7 feet 3 inches in plan and 9 feet 6 inches high, to reduce the high CO_2 content of the raw water. This aerator is constructed entirely of concrete and cypress wood, which eliminates the usual corrosion troubles with metal aerators. The water enters the aerator at the top, discharging into two V-shaped wood troughs set at right angles to each other across the center lines, and overflows these troughs. It then flows through a planked cover, drilled all over with 1½-inch holes 1½ to 3 inches apart, to evenly distribute the water over the three coke trays below, which have bottoms of 1½-inch-wide slats, ½-inch apart. Each tray contains 6 inches of 1- to 2-inch coke. Baffle-boards on the sides of each tray prevent the water spray from blowing out of the aerator. Framed, removable copper screens enclose the open sides and top of the aerator. The aerator can be by-passed for cleaning.

Precipitator

The aerated water passes to the reaction-settling tank, which is a Permutit Company Spaulding Precipitator. This tank consists of an outer concrete shell, conical in shape, 37 feet in diameter at the top, 25 feet in diameter at the bot-

tom, and 16 feet 9 inches total water depth, inside of which is an inverted steel cone, 8 feet 6 inches in diameter at the top and extending to within 12 inches of the concrete shell at the bottom. Inside the inner steel cone is a motor-driven agitating mechanism. Steel walk-ways lead to the center of the tank and thence to the aerator. An outlet weir extends around the top of the inner cone.

The water and chemicals are fed into the inner or reaction compartment, and pass through the annular space at the bottom and thence upward, in the settling compartment, to the outlet weir extending around the top of the inner cone.

The total detention period in the tank is only 60 minutes for 2.0 mgd. An 8-foot depth sludge blanket is maintained in the tank, which accomplishes a better chemical reaction and a resulting saving in chemicals as well as permitting the low detention period and providing a very clear effluent. Lime and soda ash are used for softening, the raw water containing about half each of carbonate and non-carbonate hardness. Alum is used as a coagulant.

The excess sludge is drawn off and settled in a concrete concentration tank. The supernatant liquor overflows a weir in this tank and is pumped back into the Precipitator, to save chemicals. The settled sludge flows by gravity to the sludge lagoons, or, when necessary to completely de-sludge the Precipitator, it can be pumped to the lagoons.

Recarbonation

From the Precipitator the water flows through a concrete recarbonation tank of about 8 minutes detention capacity, with a brass piping CO_2 distributing grid, and thence through a covered channel to the filter basins inside the building. It appears, from limited operation to date, as claimed, that little or no CO_2 will be required with the Precipitator, but the recarbonation tank is provided in case its use proves necessary at any time.

The CO_2 equipment, furnished by The International Filter Company, consists of a cast iron cooler-scrubber, a Nash rotary compressor, a band-type dryer, and a CO_2 flow indicator. Portable Orsat equipment is provided for determining the percentage of CO_2 in the flue gases. Two Spencer coke boilers are provided, either one of which has sufficient capacity to heat the building, except in extreme cold weather, and also to produce the combustion gases, for CO_2. The CO_2 gas line leading to the recarbonation chamber is chrome-nickel-iron pipe and the distribution grid piping is brass.

Filters

Three gravity mechanical filters, each 12 x 19 feet in plan, and 0.67 mgd nominal capacity, are located side by side at one end of the building. On account of limited funds and the generous capacity of the plant for present needs, only two of the filters have been equipped at the present time. Also, there is promise that the character of the Precipitator effluent will be such that the filters can be operated at a 3 gallons per square foot per minute rate instead of 2 gallons, for which they were designed, thus providing 2 mgd capacity in the two units equipped.

The filters are designed in accordance with usual practise, with a cast iron manifold and lateral strainer system, graded bank gravel, silica sand, and steel wash-water troughs. They are controlled with Simplex direct-acting rate controllers and operated with hydraulic valves and Infilco marble operating tables. Simplex loss-of-head gages provide the only metering equipment on the tables.

Suction Basin

The filtered effluent passes to a suction basin, of 12,000 gallons minimum effective capacity, located in the center of the building. This basin, which provides suction for the high-service pumps, is connected, by means of a 16-inch steel pipe line, with the existing clear well, which provides an additional 120,000 gallons of clear-well storage below the elevation of the bottom of the filters and, in case of necessity, an additional 100,000 gallons by backing up to the high-water operating level in the filters. A Simplex water-level gage located in the upper corridor indicates the depth of water in the suction basin and clear well.

Chemical Feeders

Three Infilco dry chemical feeders are provided, with capacity between 200 and 500 pounds per hour each for hydrated lime and soda ash, and 10 to 150 pounds per hour of alum. These feeders are located in the chemical storage room. The chemicals, after mixing with water, are discharged by gravity to the reaction-settling tank.

Automatic Control Equipment and Meters

A cam type, float switch, activated by a float in a stilling well connected to the filter inlet channel in the operating gallery, controls automatically the starting and stopping of one or more well pumps, as desired, to maintain a constant high-water level in the filters. This switch, at the same time, and synchronized with the well pumps, automatically starts and stops the chemical feeders, the agitators in the Precipitator, the supernatant pump and the CO_2 compressor. A steel panel type switchboard in the basement is provided for manual control of the high-service pumps. A Simplex venturi meter, with indicating, recording and totalizing register, is provided on the high-service pump discharge.

Building Superstructure

The building superstructure is of vari-shaded red brick, with steel sash and wood frame roof deck with composition roofing. Glass block over the entrance doorway lights the upper corridor. The interior walls, except in the chemical room, are of buff, glazed brick. The flooring is finished with mottled brown asphalt tile.

The aerator, Precipitator, sludge concentration tank and recarbonation tank are located outside in the rear of the building. The building, which is 83 x 40 feet in plan, encloses the rest of the plant. The three filters are at one end. The upper floor, 4 feet above finished grade, contains the chemical storage room, with capacity for 100 tons of chemicals, the laboratory, office, storage and toilet rooms. Wide corridors separate the various units. The basement contains the pipe gallery and the pump and

(Concluded on page 63)

When the City Acquires Tax-Delinquent Land

BEGINNING October 1, 1939, the municipalities of New York State will benefit by a new law under whose terms the foreclosure of tax-delinquent property will be a much simpler and less costly procedure than heretofore. This act of the 1939 Legislature (Stagg-Whitney Tax Bill—Senate Int. 1582, Pr. 2552) provides for action *in rem*, directed against the land as distinguished from the owner of the land, and eliminates the necessity of title searches, personal service, referees' fees and huge advertising costs. Its terms are outlined in some detail in a paper on "Tax Foreclosure Problems," by Councilman George Xanthaky, of Long Beach, in "Municipal Problems, 1939."* Other important papers in these Conference Proceedings on tax-foreclosed land problems are contributed by L. B. Cartwright, Comptroller, Rochester; Thomas E. Kennedy, Commissioner of Finance, Syracuse; C. A. Harrell, City Manager, Schenectady; and Charles L. Curran, Tax Lien Liquidation Attorney, Yonkers.

Steps in Rochester

Comptroller Cartwright's paper states that:

"Rochester has 79,000 parcels of real estate within its boundaries. On April 1.1938, 18,000 of these parcels had taxes unpaid for two or more years, and, of this number, 13,000 had taxes unpaid for five or more years. Twelve thousand of these properties were vacant lots, some on improved streets having sewer and water connections, and others representing practically undeveloped territory. Six thousand parcels were improved with buildings of one kind or another, ranging from cottages assessed at less than $1,000, to an abandoned department store building standing upon the main street of the city, originally valued at several hundred thousand dollars, but now offering no hope of immediate use for any purpose. Such is the problem in Rochester, a city of diversified industry, and prosperous beyond the average city during the past depression years. . . ."

A campaign now under way in Rochester will, it is hoped, result in keeping at least one-third of the delinquent parcels, representing by far the greater part of the assessable value involved in delinquency, in the hands of owners. With respect to those properties, largely unimproved, which must be taken over by foreclosure, other steps have been taken:

"First: There has been established in Rochester a completely reorganized planning commission. It was felt that before any definite steps could be taken to restore or increase taxable values, there must be some definite plan looking to the future. Rochester has long had a zoning commission and a well-developed zoning plan, which has been coordinated with the broader aspects of city planning.

"A study has been made of all vacant property as to its use possibilities. These depend upon many factors, such as location with relation to transportation facilities, to industrial plants, to shopping areas, to schools, etc. It is now contemplated to classify land which is owned by the city, or may be acquired through foreclosure, from the standpoint of proper zoning for its best use. For example—in large areas in one section of the city which show as subdivided lots upon the city map, but where no streets have been improved or even marked out, and where the present location of industrial plants precludes the possibility of a residential development, industrial sites may be developed. In other locations, property, now zoned as high-class residential, must be re-zoned and opened to two-family houses or even apartment houses; and commercial zones must be established where they will be most useful.

"Second: A general program of foreclosure must be carried out to take over unproductive properties on the tax rolls and to permit sale to responsible persons. In the county outside of Rochester this campaign is well under way and in two years 896 lots have been sold under agreements by the purchaser to build within a specified time. Agreed construction amounting to $1,979,000 has been added to the county assets and approximately $250,000 has been received for the land in the form of cash or by assumption of assessment debt. In the city the campaign is just beginning.

"Third: Since any permanent betterment in city affairs is dependent upon industrial development, a newly organized Department of Commerce is now actively engaged, among other activities, in a campaign to bring to Rochester various new industries, which, in addition to establishing tax-paying factories, will also result, by reason of payrolls, in supplying tax-paying incomes to home-owning factory workers. . . ."

Buffalo's Problems

In her discussion of Buffalo's tax-foreclosed land—of which the city holds some 1,500 parcels which have not been put to any public use—Assistant Corporation Counsel Strootman summarizes five of the problems requiring careful consideration:

"In the first place, it was fully realized that any property acquired by a city and not devoted to some public purpose is worse than useless. It is not only unproductive of revenue, but, in addition, costs the taxpayer money for local assessments, other maintenance charges and sometimes taxation by other municipalities. Looked at from that angle, the city would be well rid of the property at any price, provided it would be returned to the tax rolls and again become a productive factor. Neither the citizen, the taxpayer, nor the public official anxious to make a record in public service is interested in possible long-term gains in the capital assets involved.

"Secondly, notwithstanding that there was some improvement in the real estate market, property was yet unsalable at anything like its real worth and this property could probably not be sold except at bargain prices, in some instances below the assessed value.

"Third, no matter how desirable it might be for the city to unload its property, it should not go into competition with its citizens and taxpayers so as to undersell them to such an extent that the values for sale purposes of other properties in the city, particularly in localities where property was being sold by the city in any quantity, should be drastically reduced.

"Fourth, that property for sale in the city had to compete with property in bordering towns and villages much of which was being sold at a low figure.

"Fifth, consideration had to be given to sale prices in connection with the assessment of adjoining property. To avoid legal complications consideration

* Proceedings of the Thirtieth Annual Meeting of the Conference of Mayors and Other Municipal Officials of the State of New York, obtainable at $1.25 from the office of the Conference, City Hall, Albany, N. Y.

should be given, in any plan proposed, to some method by which any considerable reduction in the price below the assessed value could be compensated for by other considerations . . ."

Progress in Yonkers

Yonkers seems to have given more consideration than the other municipalities represented in this symposium to making good public use of tax-foreclosed land. Says Attorney Curran:

"It is not a practical solution of the problem to endeavor to force all land so acquired into private ownership. There are many parcels of property which, owing to their nature, will never be productive and, consequently, are not even potential income producers.

"To endeavor to keep such lands in private ownership only tends to falsely increase the tax base and to ultimately create deficits, since taxes would have to be levied against such properties but would rarely, if ever, be collected from the owners thereof.

"In the rural districts some of these properties can be disposed of for utilization for reforestation. However, no such outlet exists in the urban areas. Therefore, title to these properties should be allowed to remain in the municipality unless it is definitely shown that, despite their undesirability, they can and will be put to a productive use.

"In addition to that type of property, other properties can be acquired and used for municipal purposes. The city of Yonkers has been very fortunate in acquiring properties of this nature and has utilized them for playground facilities, parks, street openings, sewer easements, additions to existing school playgrounds and for additional school sites to be used when, as and if the schools are needed.

"The above two classifications have resulted in the disposition of properties falling within those categories. However, the city of Yonkers has acquired many hundreds of parcels, which are available for private ownership and use. . . .

"A close contact has been established with the Yonkers Chamber of Commerce. The latter organization has been very active in endeavoring to bring new industries into the city of Yonkers. Since the city is now the owner of a number of desirable business and industrial sites, that contact should result in some sales of that type of property."

Community Forests Increase in Number and Value

STEADY GAINS in number, size and usefulness of community forest enterprises throughout the nation are being reported to the Forest Service, U. S. Department of Agriculture, said Ernest O. Buhler, forest specialist, speaking on July 12 before the North Carolina Forestry Association at Blue Ridge, North Carolina.

"New community forests are constantly being established," he said. "Although there are now more than 1,500 in the United States, new community forests were established this year in Florida, North Dakota, Virginia, Illinois, Michigan, Georgia, North Carolina and a number of other states."

Among the reasons given by communities for starting local public forests, Mr. Buhler has found, is the value of such undertakings as a profitable community investment which will bring returns in timber sales, will provide recreational areas, outlets for unemployment, protection for watersheds, refuges for wildlife, and improved community environment.

Twenty new forests established in the state of New York in 1938 brought the total in that state to nearly 600. These contain 150,000 acres on which more than 68 million trees have been planted since 1909, when the first unit was established at Gloversville. One locality has a triple program, Mr. Buhler said. The village of Sherburne, with a population of 1,077, owns a community forest of 400 acres on which nearly a half-million trees have been planted, and the township of Sherburne also owns 400 acres of forest on which it has planted more than a third of a million trees. The school district of Sherburne owns an additional 12 acres which is being used as a school demonstration and study forest and where 12,000 trees have been planted.

The city of Newnan, Ga., reports a community forest of 800 acres which has been established on abandoned farm land purchased for the city watershed. A portion of the forest has been developed into a picnic ground and equipped with a lodge, barbecue pits, benches, tables, playground equipment and the like, which find almost daily use.

One of the oldest community forests in the nation, Mr. Buhler said, is that of Danville, N. H., which dates from pre-Revolutionary War days and has yielded more than $30,000 in timber sales and interest in a trust fund established from proceeds of forest sales from 75 acres.

A community which establishes a forest of 2,000 acres might have a property valued at $100,000 at the end of 30 years, in Mr. Buhler's opinion, since such a forest is conservatively estimated to increase in value at the rate of a dollar per acre per year, if properly managed and protected. In some cases, he pointed out, returns would be much higher, depending upon tree species and growth, nearness to market, management and other factors.

THE AMERICAN CITY'S PLATFORM

In this issue, which completes the thirtieth year—360 monthly issues—of publication of THE AMERICAN CITY, it may not be amiss to reprint the platform which has appeared in these columns from time to time in past years:

This magazine advocates:

Streets that are well built, well lighted, and well cleaned and maintained

An abundant supply of clear, safe, potable water

Sanitary disposal of sewage and garbage

Fire and police departments properly trained and equipped

Traffic control for safety and facilitation; fewer grade crossings

Plenty of parks, parkways, playgrounds, and swimming pools

Banishment of slums, and building of well-planned home neighborhoods

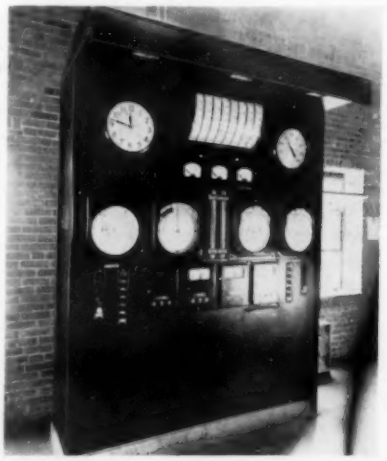
Administrative efficiency and citizenship cooperation in bringing these things to pass

Fremont Steam-Electric Plant Modernizes

THERE are indications that with the completion of its $273,000 rehabilitation program the city of Fremont, Nebr., now possesses a power yardstick measuring 36 inches. The principal improvement is the installation of a 600-hp Murray Iron Works type A boiler built for 400 pounds pressure, with water walls, and superheater equipment to produce 750 degrees F. steam temperature, and an economizer. This is the type of improvement necessary, as Dr. M. J. Zucrow pointed out here last month, if these plants are to hold the respect of the power industry. Black & Veatch, of Kansas City, Mo., consulting engineers, say that the Fremont plant is now in the forefront of power plants.

An electric coal-weigh lorry of the Beaumont Birch Co. carries coal from bunker to the Taylor water-cooled stoker whose grate consists of seven feeding troughs each equipped with a ram and secondary pushers driven through a two-speed gear box controlling the rate of feed. Between the troughs or retorts are the forced-draft ports, and at the rear is a common ash pocket floored by a pair of crusher rolls which discharge the ash to the ash hopper below the rolls. The stoker grate is covered by water tubes which cool the grate, and by thus preventing adhesion of molten ash to the grate not only reduce grate maintenance and keep the boiler in longer operation, but also permit burning the lower grades of coal.

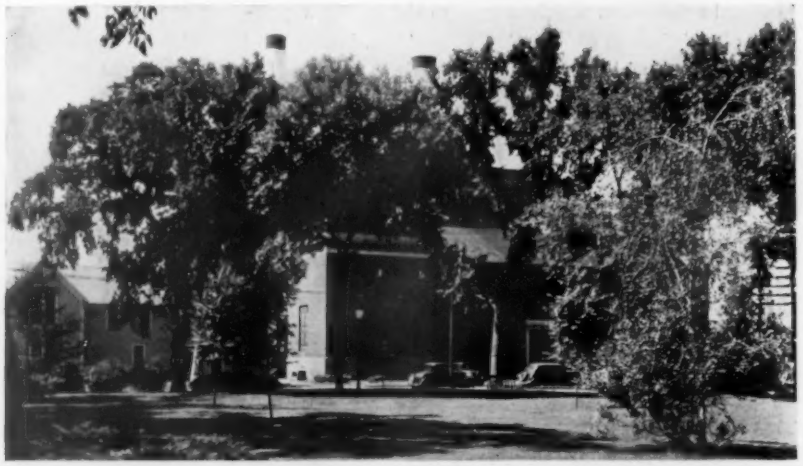
The enclosing brickwork of the boiler contains half a mile of pipe which is exposed directly to the furnace and through which water circulating keeps the brickwork at low temperature. The Foster-Wheeler superheater raises steam temperature from 448 degrees up to 750 degrees, with a resulting large increase in turbine efficiency. The economizer, of same make, placed between the boiler and the chimney, uses the waste gas heat to warm up the feed water for an increase in boiler efficiency amounting to 9 per cent. The duplicate centrifugal boiler feed pumps were furnished by The De Laval Steam Turbine Co. Water hardness is removed by a Cochrane softener, which makes it possible to operate the boiler from six months to a year without shutting down for cleaning, instead of a week or two. The de-aerating feed-water heater, made by the Elliott Co., is a vertical cast-iron cylindrical unit rated at 80,000 pounds per hour which heats the feed water to the temperature of the steam supplied it, with a further contribution to boiler efficiency. This type of heater also removes corroding gases from the water.



The B. F. Sturtevant forced and induced draft fans, which add oxygen to the burning fuel and can increase the output of the boiler, furnish a draft equivalent to that of a 500-foot stack.

Crane Co. supplied the high-pressure piping and valves, and the Bailey Meter Co., of Cleveland, furnished the reducing pressure valves and control panels which reduce the pressure from 400 to 300 pounds, and by use of an Elliott de-superheater from 750 to 550 degrees, to meet the design of the turbine, which was not rebuilt for the higher pressure and temperature. Air from two Gardner-Denver compressors operates these regulating valves. The other turbine was rebuilt by the General Electric Co.

From 1885 to date, Fremont's Department of Public Utilities has grown steadily on a pay-as-you-go basis. The residence rate for electricity is 4.5 cents for the first 50 kwh, 3 cents for the next 50, and 1 cent thereafter. Residence water rates are 10 cents per 100 cubic feet for the first thousand, 6 cents for the next, and 4 cents thereafter, with a special summer rate of 3,333 cubic feet for $1. Lower electric rates are in prospect. The Department of Utilities is directed by the Board of Public Works, headed by J. Rex Henry. Lon D. Wright is Superintendent of the plant.



THE POWER PLANT OF FREMONT, NEBR.

Above—automatic combustion control, which regulates amount of coal and draft, maintains steam pressure, and shows boiler water level

Collection and Disposal Costs for Milwaukee Garbage

Increased Efficiency Results in Lower Costs Despite Increase in Amount Collected

DURING the year 1938 the city of Milwaukee, Wis., collected 47,763 tons of garbage, which was an increase of 5,589 tons over 1937. The major factors contributing to the increase in weight are the large number of automatic stoker, gas and oil burner installations that have been made during recent years, thus preventing householders from burning small amounts of refuse at home, and the favorable moist season in 1938 for the local growing of fruits and vegetables.

The collection equipment used in Milwaukee includes: four-trailer trains each consisting of a Sterling tractor-type truck with truck operator and trailer-man handling eight Highway trailers, four being hauled and four loaded; two-trailer shuttles consisting of one shuttle truck and operator and six Highway semi-trailers, two being hauled and four loaded; and one-trailer shuttles consisting of an International shuttle truck and operator with four semi-trailers, one being hauled and three loaded.

The system of handling the trailers is to have them pulled by horses through the alleys while being loaded and then to a designated spot to be picked up by the tractor or shuttle truck for hauling to the incinerator in trains. The average length of haul in 1938 for the four-trailer trains was 4.8 miles; for the two-trailer shuttles, 3.9 miles; and for the one-trailer shuttles, 2.3. The shuttles being lighter and faster, the one-trailer shuttles make twelve trips to the incinerators per day, and the two-trailer shuttles make eight trips to the incinerators per day. The four-trailer trains make only four trips daily to the incinerators.

Horse-Drawn Train of Garbage Trailers

Of the total garbage collected in 1938, the four-trailer trains hauled 63.83 per cent. In 1937 the trains hauled 80 per cent of the total. By replacing three units of the regular four-trailer train units with two-trailer shuttles, beginning in July, 1938, and eliminating two trailer men, the Collection Division saved approximately $1,794.66.

GARBAGE HAULED BY VARIOUS UNITS

Loads Hauled	Aver. Wt. Per Load	Tonnage	Per Cent		Direct Cost Per Ton
28,297	2,155	30,486,350	63.83	Four-trailer trains	$5.54
5,815	2,323	6,752,825	14.14	Two-trailer shuttles	4.77
5,773	2,581	7,452,675	15.60	One trailer shuttles	4.41
1,303	2,430	1,582,875	3.31	Direct-haul trailers	6.36
836	3,563	1,489,225	3.12	Commercial truck	7.29
42,024	2,273	47,763,950	100.00	Total city collections	$5.34

The cost of collection, including vacations, field supervision, supplies and automobile service, amounted to $267,914.85, or $5.61 per ton, in 1938. This is a decrease of 75 cents per ton as compared to 1937.

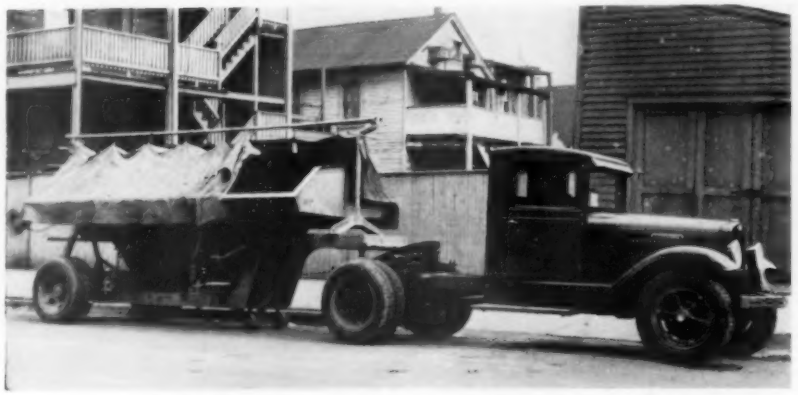
Complaints

A total of 624 complaints were recorded in 1938, as compared to only 482 in 1937, 523 in 1936, 458 in 1935, 427 in 1934, and 650 in 1933. As a rule, there are more complaints when there is more garbage to be collected, and 1938 was no exception. In addition, the substitution of shuttles for train units on some of the routes was responsible for many additional complaints, as the collection schedules had to be changed and the crews shifted, which was confusing to the householder until he became accustomed to the new schedule.

Incineration Costs

Including the garbage delivered by private trucks to the incinerators, a total of 51,886.2 tons was incinerated at a cost of $123,323.43, or $2.38 per ton, a decrease of 25 cents a ton as compared to 1937.

The following tables show the weights of the various materials incinerated and the direct and indirect costs:



International Tractor-Truck Picking up a Semi-Trailer Garbage Truck

Total garbage	51,886.2	tons	
Ashes and cinders (used for fuel)	4,533.0	"	Plant residue
Other refuse incinerated—rubbish	632.5	"	
—waste oil	551.4	"	
Total—All refuse	57,603.1	"	6,918.8 tons

Personal Service	Tonnage	Expenditures	Per Ton
Old incinerator	42,766.675	$105,256.18	$2.461
New incinerator	9,119.525	11,542.13	1.266
	51,886.200	$116,798.31	$2.251
Indirect Expenditures			
Supplies and materials	$3,942.54		
Repairs	4,106.78		
Other services	10,206.59	18,255.91	.352
Total expenditures		$135,054.22	$2.603
Deduct:—Net credit on account (Due to city from Electric Co. for electric current generated at the incinerator power plant)		11,730.79	.226
Net cost of disposal		$123,323.43	$2.377

The cost of operating personnel, or personal service, in the old incinerator is high in comparison to the new plant. This difference is due to the fact that in the old incinerator all the charging is done by hand, while at the new plant the charging is done mechanically, and the plant is used only during the peak garbage season. The old incinerator is used during the entire year. This is necessary to provide heat, light and power for both incinerators as well as hot water, heat and light for the incinerator garage and plant office. This overhead is included with the cost of personal service for the old plant. In addition, the old incinerator generated current for which the city received a net credit of $11,730.79 during 1938.

The following table gives a summary of the expenditures by the Bureau of Garbage Collection and Disposal for 1938, divided according to the character of the work and showing the credits accruing to the various services:

Office division		$15,198.20
Collection—garbage	$269,140.95	
Less—commercial collections	1,226.10	267,914.85
Collection—waste oil		4,165.24
Disposal	$135,054.22	
Less—net credit on account	11,730.79	123,323.43
Net cost—city		$408,601.78

In 1938 the city of Milwaukee had an estimated population of 625,000 and an area of 44 square miles. The combined cost of administration, supervision, collection and disposal was $408,601.78, giving a per capita cost, including all charges, except depreciation and interest on investment, of approximately 65 cents. M. G. Oestereich is Superintendent, Bureau of Garbage Collection and Disposal, in charge of this public service.

Loaded Garbage Hauling Units Arriving at the Milwaukee Incinerator

Vary the Tees and You Change the Course

THE PARK DEPARTMENT of the city of Pasadena in collaboration with Bell & Tillinghast, golf architects, injected considerable variety into its 27-hole municipal golf course by having two tees for some holes and three for others. This arrangement has several distinct advantages. It saves labor, as all the wear and tear does not come on one tee, and the grass does not have to be forced by heavy fertilization. In the second place, this scheme gives variety to the holes. By placing the tees about 50 feet apart, the playing of the holes can be changed considerably. For example, on No. 4 hole, the old tee gives a straight shot of 470 yards, and is elevated so the green can be seen in the foreground; whereas the new tee makes this a dog leg or angle shot of 499 yards.

Playground Organizes "Life Begins at 40 Club"

THE CITY Recreation and Playground Department of Santa Monica, Calif., has organized a "Life Begins At Forty Club," in which, under the supervision of the Municipal Playground Director, "young oldsters" are given instruction in volley-ball, tennis, ping-pong and other games tending to keep the waistline down and the blood pressure at a normal pitch.

Each Tuesday and Friday the group meets from 9 to 11 A.M. at the city's Pacific Ocean beach-front playground, the first several sessions attracting an attendance of some 40 to 50. In addition to instruction in athletic phases of the club's activities, free instruction will be given in other pastimes.

Penny Parking Pays

By PHILIP T. SMITH
Chief of Police, New Haven, Conn.

NEW HAVEN, CONN., is the only city in the United States, as far as I know, operating penny parking meters. We have 397 of them in our central business district, and the rate is one cent for fifteen minutes and two cents for thirty minutes. These meters have had three big results: (1) they have cleared up congestion, removed the all-day parker, eliminated double parking, speeded up traffic flow, and permitted me to discontinue a special squad formerly maintained to clear congestion from 4:00 to 6:00 P.M.; (2) they received instantaneous approval from motorists, banks, merchants and taxpayers, and I have been unable to locate a single dissenter; (3) they are more than paying their cost, with a total revenue of $1,920.68 for the first four weeks (24 operating days) , or 20.128 cents per meter per operating day, which means an average turnover of at least ten cars per space. I happen to know that at one location the meters are earning 32 cents per day, which means a minimum turnover of 16 cars. Observations have been reported of six or seven cars using the same penny's worth of time, and at noon on one block eight spaces were found vacated with 6 to 25 minutes available on the meters.

Why We Have Meters

Prior to the installation of parking meters this city, in common with most of the cities of the country, had wrestled with the well-known parking problem. The curbs were congested with long-time parkers, many of them merchants and store employees, who have since seen the shortsightedness of occupying the places of prospective customers. New Haven is one of the oldest cities in the United States, and its business section was crystallized a century ago; meantime population has grown to 162,000, which is swelled by adjoining towns to a shopping and marketing population of 225,000. Double parking, cruising and fender-denting maneuvering were common practices difficult and often impossible to cope with. Efforts to regulate the mess produced no lasting improvement. It would have taken all the time of ten men to enforce the quarter-, half-, and one- and two-hour regulations.

The Board of Police Commissioners, which is the traffic authority of New Haven, decided to investigate parking meters, and delegated the details to the Supplies Committee, which examined the various types of meters available, preparing general specifications, and taking bids, and, on June 5 last, recommended the purchase of Mark-Time meters. On July 24, there were installed, with dials facing traffic, the 397 penny meters and 56 two-hour-for-5-cent meters. Our motive obviously was not to make money but (1) to bring order out of chaos and (2) to facilitate the transaction of business. We wanted, moreover, to retain our former and existing parking regulations, and felt that a charge of

Policeman collects coins from New Haven's parking meters by means of a hand truck with capacity for 392 coin boxes. The bag on top of the truck holds 28 boxes. Total collections can be made in one round.

one cent for fifteen minutes and two cents for a half-hour was eminently fair. This turned out to be the case, and to our natural satisfaction the meters will pay for themselves and provide a surplus for further traffic improvements. Another decided advantage is that truck deliveries have been made easier, for trucks now find space at which to load and unload and are permitted to do this at no fee.

Right now any car can find one- or two-hour parking zones one block away from any metered street, with the result that motorists regard metered parking as a convenience and not as a tax, and the plan has the unqualified support of the community. Indeed, the Chamber of Commerce says we have hit on "the only solution to a tangled parking problem. There was no other solution, and this is something to hold downtown business instead of having part of it go out on the Boston Post Road and compete with what was left in the central district."

The meters have been entirely satisfactory mechanically. All servicing is being performed by M. H. Rhodes, Inc., Hartford, and we have a mechanically gifted member of the Department preparing himself against the time when the care of the meters will be our responsibility. Even then, in case of serious defect, we will send the meter head to the factory, replacing it with one of the spares which we keep.

Nine Years with an Inter-Office Communicating System

SIX comptrollers of the city of New York, four Democrats and two Fusionists, have flipped the keys of the same Dictograph intercommunicating system, to save steps, writing memos and making telephone calls. Installed in 1930 by Comptroller Charles W. Berry, the system has never been out of operation except to relocate stations on account of reorganizations.

One official says he would vigorously protest any move to discontinue the intercommunication. He uses it many times a day, but even if he used it only a few times, the same convenience would attend each call. There is no wait. A key is flipped. The man at the other end is either there or not there. The fact is known instantly to the man who calls, and the register shows the call until it is answered.

Then the conversation is private, no listening-in, and both hands are free to look through drawers or documents or to take notes. Time and money are saved, and waste and annoyance are avoided. In fact, the only time consumed is in the conversation itself, and the information desired is obtained herewith.

All Officials Interconnected

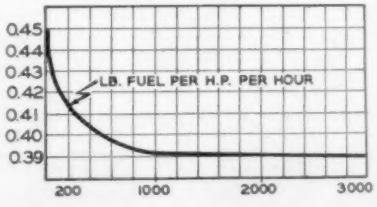
The departmental system consists of 47 secondary stations which receive but cannot call, and 13 master stations which call but cannot be called. The masters are used by officials located on seven floors of the municipal building.

In addition to this interdepartmental service, the Comptroller is connected with the City Treasurer (a separate department), and five instruments in the Comptroller's department connect with the Deputy City Treasurer, City Collector, City Paymaster, Chief Clerk, and the Bureau of Real Estate of the Board of Estimate. The system operates on 38 dry cells—12 on the Comptroller's master station and two on each of the other master stations.

The system was purchased for $16,000 in the days of high general prosperity, and now nine years later, costs only $300 to service each year. A coverage as extensive as that in the New York Comptroller's department may now be had, with improved facilities, at half the cost of that system.

Diesels in Municipal Plants

TO ANSWER the question, "If we should install a diesel engine, how much fuel would it consume?" I have gathered data on fuel consumption by modern diesels up to 3,000 hp and have developed the accompanying curve which tells at a glance what good diesels are doing today.



If your requirements are 50 hp or less, you can figure on a fuel consumption of 0.45-pound per horsepower per hour with a modern engine. If you need a 100-hp diesel, the consumption will be about 0.42-pound per hp. The curve shows that with increase in engine size the fuel consumption improves rapidly from the smallest size to 200 hp. From 200 to 1,000 hp the improvement is less rapid. From 1,000 to 3,000 hp the improvement is very slight, being practically 0.39-pound per hp for all sizes in that range.

To determine the efficiency of any engine size, with any fuel, multiply the B.t.u. value of the fuel per pound by the number of pounds per hp and divide the product *into* 2,546.

For example, if the fuel contains 20,000 B.t.u. per pound and you will require a 500-hp engine, the chart shows that you must multiply 20,000 by 0.40, which gives 8,000 as the product. Now divide 2,546 by 8,000 and it will be found that the engine will have an efficiency of 31.8 per cent, which is a high efficiency as compared with most engines of other types. It means that 31.8 per cent of the heat contained in the fuel will be converted into work. Even at 0.45-pound of fuel per hp per hour, other conditions being the same, the efficiency will be 28.3 per cent, which is a *high* efficiency.

During 1938 the largest diesel installed in the United States, in a municipal plant, is credited to Sturgis, Mich. It is a 2,675-hp engine and operates at 240 rpm, has 8 cylinders, bore 20½ inches and stroke 27½ inches. It consumes 0.39-pound fuel per hp.

The most efficient diesel installed in a municipal plant during 1938 is said to be in Hutchinson, Minn. It is a Nordberg 1,500-hp, 6-cylinder engine, operating at 257 rpm. It consumes only 0.36-pound of fuel, which means that on the basis of 20,000 B.t.u. per pound of fuel its efficiency is 35.4%.

W. P. SCHAPHORST, Newark, N. J.

One Chemical, Three Treatments at El Segundo Water Works

Hydrated Lime Performs Functions of Softening Reagent, Coagulant and Bactericide

By LOUIS J. ALEXANDER
Civil Engineer,
Los Angeles, Calif.

THE city of El Segundo has joined the group of cities which have changed from a hard water, contaminated with organic matter supporting slimy growths of bacteria, which in turn cause obnoxious odors and tastes, to a clean, clear, soft, and potable water supply. This Southern California city is about twelve miles southwest of Los Angeles and about one mile inland from the Pacific Ocean. It is a residential area with a population of 4,000 made up principally of employees of the El Segundo Refinery of the Standard Oil Co. of California.

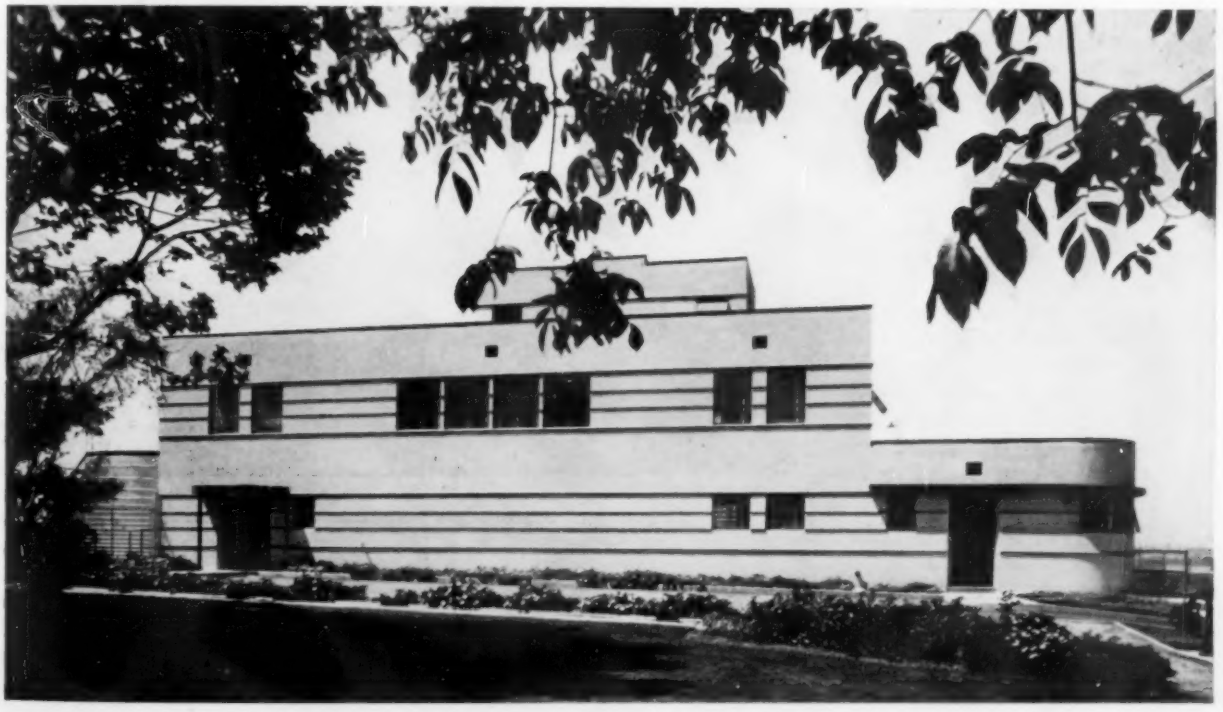
Like much of the water of the Lower Coastal Plain of Southern California, the water supply of El Segundo for the past few years has become increasingly contaminated by organic matter derived from subterranean peat beds and from the deeper-lying petroleum measures. Such waters support heavy growths of slime-forming bacteria, which, during their life cycle, produce repulsive odors and tastes, and under anaerobic conditions liberate hydrogen sulphide.

El Segundo tried aeration and then chlorination, each with unsatisfactory results. Each treatment produced a temporary favorable reaction, but was unable to completely control or overcome the continuously increasing load of micro-organisms. As each of these incomplete treatments failed, it was apparent that other methods must be adopted.

Carl Wilson, a water technologist of Los Angeles, was called in by the city of El Segundo, through its City Council and the City Engineer, to make bacteriological and chemical studies. As it comes from the wells, the water contains sufficient free carbon dioxide to depress the pH to 7.2 or 7.3, a point which encourages rapid bacterial development, with consequent water spoilage in the reservoirs and distribution system. The total hardness varied from 250 to 300 ppm.

Dual Treatment Employed

To prevent bacterial growth, two courses were open—to remove the organic food material by coagulation and filtration, or to use some bacterio static agent. It was decided to combine the two methods, using hydrated lime as the only chemical. It was regarded essential that the treatment be as simple as possible, so that it would be un-



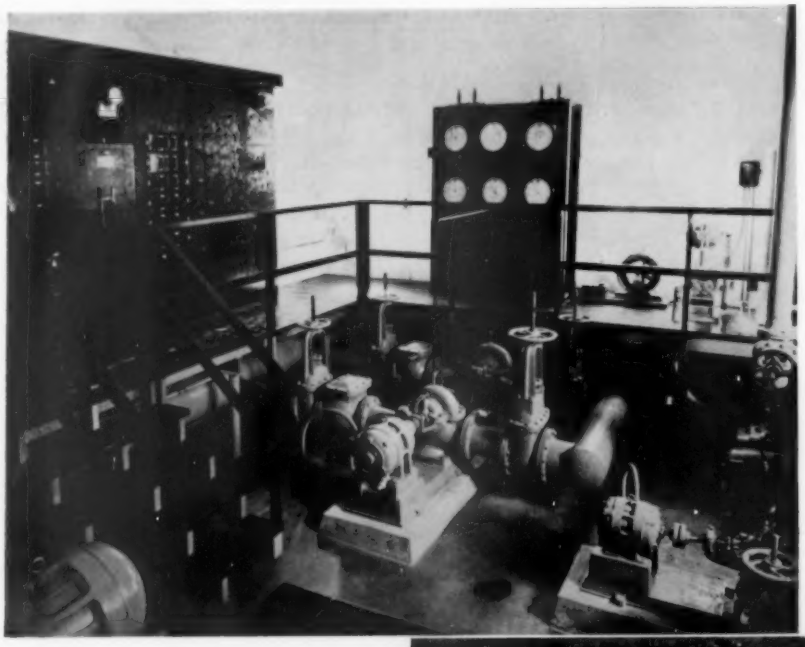
The Park Side Elevation of the Operating Building at the El Segundo, Calif., Water-Treatment Plant

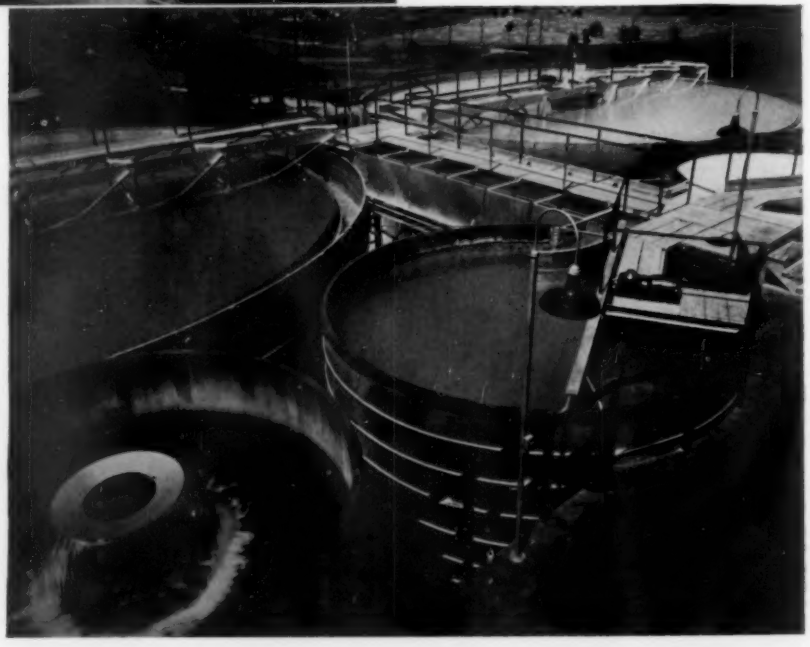
necessary to employ highly trained operators.

A dosage of 16 grains of hydrated lime per gallon was found sufficient to raise the pH to 10.5, at which value bacterial development was inhibited. At the same time the lime floc, produced by the softening reaction, removed a considerable proportion of the organic matter, while the total hardness was reduced to 150 ppm.

The pH was not readjusted by carbonation, since it was deemed best to maintain this value at about 9.5 through the storage reservoir in order to take advantage of the bacterial control offered by high alkalinity. Experience elsewhere with similar waters had shown that if water could be maintained at a pH of 9.0 or slightly higher in a distribution system, troublesome growths of slime-forming organisms would not develop, while at the same time the alkalinity was not high enough to affect the taste of water in service. Of course chlorine might have been used to suppress bacteria, but since this water has never shown the presence of coliform organisms and is not exposed to sewage contamination, it was decided to avoid the use of a second chemical with incidental expense for chlorinators, which in turn would have made one more operation to be cared for by the plant attendants.

Successful operation of the plant for six months has shown that the use of one chemical, hydrated lime, to perform the three functions of softening reagent, coagulant and bactericide is justified.





At Left, the Pump-Room in the Operating Building. Below, the Outdoor Plant, Showing Across the Foreground the Aeration Tank, Secondary Mixing and Primary Mixing Tanks, and at the Back the Secondary and Primary Sedimentation Tanks

The New Plant

The author was employed to design a plant to accomplish the proposed treatment. The design embodies the following processes in order: collection of raw well water, aeration, mixing, flocculation, sedimentation, filtration, and transfer of filtered water to the main storage reservoir. The plant is designed to treat two million gallons daily, continuous flow, but is capable of handling three million gallons daily.

Water is pumped by three Layne & Bowler deep-well turbine pumps into a system of pipe lines which deliver the water through a pressure sand trap to the aerator tank. Aeration is accomplished in an open-top redwood tank. A Sutorbilt positive blower driven by a 3-hp motor forces air through a series of porous Carborundum tubes which have a 10-foot submergence. The raw water is introduced at the top of the tank. From the bottom of the aerator tank, water flows to a switching station between two mixing tanks. The switching station is so planned that water can be directed to either of the two flocculating tanks, or proportioned between the two, or directed to either, or both, of the sedimentation tanks. It is in this switching station that the raw water receives its lime dosage.

Flash mixing is accomplished in

the downtake line to the flocculating tank. The flocculating tanks are constructed of redwood and rest on concrete foundations. There is a detention period of 20 minutes in the primary flocculating tank, at maximum flow. From the primary flocculator, water flows through the switching station and central flume to the primary sedimentation tank.

Steel Sedimentation Tank

The sedimentation tank consists of a steel shell resting on a concrete base, and has a concrete floor which was screeded to a smooth surface and the proper slope to provide a satisfactory sweeping surface for the Dorrco clarifier to remove the sludge deposit. An interesting feature of the sedimentation tank is the central downtake well with its radiating headers. These headers have orifices on the bottom to permit the water containing the lime floc to flow into and agitate the surrounding sludge blanket. There is a definite demarcation between the top of this sludge blanket and the relatively clear water which is in the upper half of the sedimentation tank. Influent water rises slowly through the sludge blanket, and spills over a peripheral weir into a launder, supported on the outside shell of the tank. Water in the launder flows to a second switching station from which it may be directed in several ways, but, at present, flows back through the central three-barrel flume into the secondary flocculating tank. After passing the secondary flocculating tank and the secondary sedimentation tank, the water enters a third switching station. The third switching station was installed to provide flow either to a recarbonation tank or to the filters. However, the recarbonation tank was not constructed, because subsequent experimental work and operating experience indicate that recarbonation is not necessary.

Filters

The filters are constructed of redwood, with an underdrain system of Transite pipe. There is graded gravel around, and 18 inches above, the Transite headers. A 27-inch bed of sand rests on the gravel. Water when it leaves each filter passes through an Infilco rate controller which has several interesting controls. The rate of flow for each of the three filters may be set by remote control from an Infilco panel on the operating floor above the pipe gallery. There is a solenoid-operated automatic shut-off attached to the reset lever of each controller. This shut-off is actuated by a float-switch in the clear well tank. Thus, filtration will automatically stop upon the filling of the clear well. One Infilco rate-of-flow and one Infilco loss-of-head gage is mounted on a separate table. These two gages, through a series of four-way valves, indicate the operation of any one of the filters.

Complete control of the filters, including the starting by remote control of the 3,600-gpm Fairbanks-Morse backwash pump, is accomplished from the operating platform. Backwash water flows to a waste water reclamation tank. This is a reinforced concrete structure set in the ground. Practically all the wash water is reclaimed by a 150-gpm Fairbanks-Morse waste-water return pump which transfers the water to the first switching station.

The clear well is a circular concrete tank of relatively small capacity and acts primarily as a pumping sump from which a 6-inch, 1,000-gpm Fairbanks-Morse and a 5-inch 750 - gpm Worthington - General Electric transfer pump pass the water to a million-and-a-quarter-gallon storage reservoir. This main storage reservoir formed part of the original water plant for the city. High-lift booster pumps, two 5-inch and one 6-inch Byron-Jackson, pass the water from the reservoir to a 50,000-gallon elevated steel storage tank erected by the Pittsburgh Des Moines Steel Co. The piping at the plant is so arranged that, by the opening and closing of the proper valves, the treatment plant can be bypassed and the water from the wells delivered directly into the reservoir. All water pumped from the plant is measured by a Foxboro flow meter.

Self-Supporting Water Works

El Segundo is one of the few cities having a water department which is entirely self-supporting. The Water Department is run on an efficient basis, and it had cash in the bank to carry out the entire construction program. It was not necessary to call on Federal agencies for financial assistance. By doing the work on a force account basis, the city was able to take care of what little unemployment existed within it.

The plant was built under the direction of the City Engineer and his assistant. The city elected to enter into contracts for the construction of the steel sedimentation tanks and the redwood aeration flocculating and filter tanks, and for the furnishing of mechanical equipment. All other work, including reinforced concrete, the construction of the operating building, piping, electrical work, and the installation of mechanical equipment, was done by force account.

Operating Building

The operating building is a pleasing architectural structure of three stories with 4,400 square feet of floor space. The main entrance hall, two stories in height, is on the ground floor. Also on the ground floor is the pump-room in which are the low-lift transfer pumps, the wash-water pump, and the waste-water return pump. In the pump-room is the main Trumbull electric switchboard from which all the operating equipment, the well pumps, the high-lift boosters, the air blowers, the transfer pumps, and all the mechanical equipment of the treatment plant, may be operated, directly by remote control, or automatically. On the first floor there is also a room in which chlorine equipment may be installed if chlorine treatment becomes necessary in the future. The remaining portion of the ground floor is occupied by lime storage space.

The second floor of the operating building houses the laboratory for plant control, the chemical feed room, in which are installed two Infilco dry feeders, a meter-shop for the testing, repair and maintenance of all water meters, and offices for the Water Department Superintendent and the treatment plant operator. The wash and locker rooms for use of the Department

(Concluded on page 67)

Problems of Sewage Treatment

As Seen by a Non-Technical Member of a Local Citizens' Committee and Described for the Benefit of Other Committee Members

(Continued from the August issue)

Combinations of Treatments

We can now put into use what we have learned. In determining what system is best, the population of the area, the drainage slopes, the type of soil, the nearness to deep water, must all be taken into account along with dozens of other factors. Nevertheless, we can set up some quite imaginary system which may not work everywhere but probably will work somewhere. By so doing we can perhaps satisfy ourselves as to which type of treatment is best for our own locality, and how that system should be built.

Systems can vary, from a gravity flow out to sea as the simplest, to the activated sludge system as the most complicated. Costs cannot now be compared except in a very careless manner.

Let us assume that we agree that all sewage shall be brought together at one point. What is the first thing to do now? The present trend is to put in a comminutor. If disposal is to be at sea, this device will grind up the sewage so that there will be no solid objects, or objects held up by air bubbles to appear over the outlet or to float about the harbors and spoil the beaches. If disposal is to be made on land, it will facilitate the settling-out of solids, break them up so that purifying action can take place, and make them less obnoxious. The finished sludge would resemble a compost heap rather than a manure pile. Further, it keeps large hard objects out of the pumps.

Now that the sewage has been reduced to a liquid with very fine particles suspended in it, it would be a good time to put it through a settling tank and separate the liquids and sludge. But wait. Are we going to send it to sea? If so, we can put in our tank and then a pump, if necessary, to send it on its way. If we are going to treat it at a point on land below our present level, we can still put in our settling tank and let the liquids run down-hill, or we can let the whole business run to the treatment plant and settle it there. If we are going to pump it to a higher level, we can still settle it and pump the liquid up-hill and cart away the solids, or we can pump the whole business up-hill and settle it when it gets there. One way means a little more carting, the other a little more pumping. If we are going to use an Imhoff tank, we can take it by gravity or force line direct to the Imhoff tank, without settling, since the Imhoff tank is itself a settling tank.

We can now forget the sea disposal, for we have either sent everything out to sea, or removed the grease and sludge and sent the liquid out to sea.

On land we have brought the sewage through a comminutor and pumped or otherwise transported it to the treatment plant. If it comes in with liquid and sludge, we must now separate it in settling tanks or an Imhoff tank. If it comes as liquid without sludge, we can send it direct through the filters. If put through the Imhoff tank or the settling tanks, the resulting liquid can go to the filters. This would also be the case with the liquid from the activated sludge plant. Whether we use settling tanks only, Imhoff tanks, activated sludge or a combination, we get fairly dry sludge, and liquid.

The settling tanks alone give raw sludge, impure from a medical or sanitary viewpoint, disgusting as to smell and sight. The Imhoff and the activated sludge plant give a practically harmless sludge which should be sanitary and which in appearance might resemble leaf-mold or rotting hay.

Location: What to Look for

The location of the plant depends upon the system to be used. The system to be used depends upon the location. You can tackle it from either end.

Let's start with sea disposal. If you are many miles from deep water, such a system will be prohibitive in cost. You must have not less than 20 feet of water at the outlet, and 40 would be better. The tidal currents must be such as to carry all material away from beaches and yachting areas. This consideration alone will determine whether you can have a sea-disposal system. Have an engineer estimate the cost, and you will be able to answer that question.

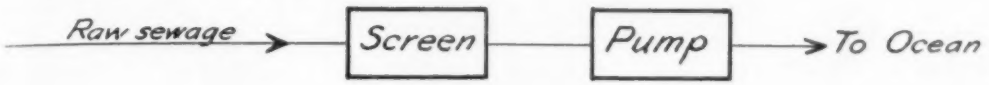
Now for land disposal. Sludge can be carted away and buried in waste areas, as can grease. Both can be burned if necessary. The dried sludge, while having little fertilizer value, does make a good fill and in very sandy soil might help to build up a loam over a number of years. However, the material obtained from simply dumping and draining is very unpleasant and contains grease, which tends to keep the air and water from the roots of plant life. Such treatment can be recommended only as a temporary expedient to improve a worse condition—which is a thing hard to picture.

Our problem now is to take care of the liquids. In some localities there is a natural layer of sand which, when uncovered, makes a natural and inexpensive filter. In other places such a filter must be built of imported sand or stone. In any event, the ground where the filter is to be located should have the best drainage possible. If no such place can be found, then all one can do is to locate the plant near a stream-bed where the filtered liquid can be turned into a stream and allowed to run to sea. Take care lest some community farther down-stream use the stream for drinking water.

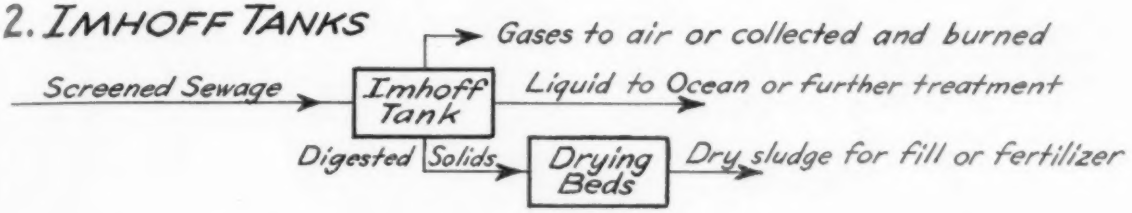
Dumping this liquid, called effluent, into a stream is supposedly

DIAGRAMS SHOWING METHODS OF SEWAGE TREATMENT

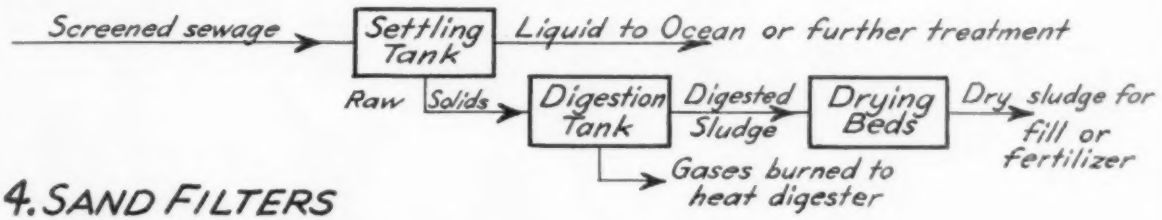
1. SEA DISPOSAL



2. IMHOFF TANKS



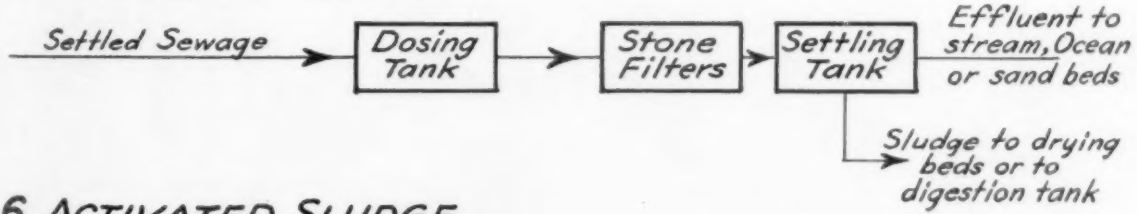
3. SETTLING TANKS and SEPARATE SLUDGE DIGESTION



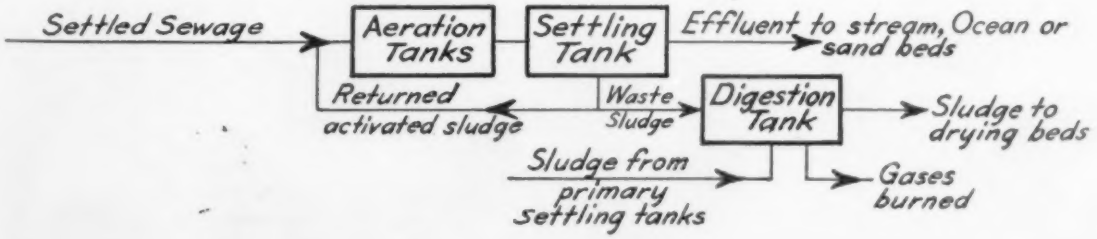
4. SAND FILTERS

Settled Sewage
Dosing Tank
Sand Filters
Effluent to stream, Ocean or into ground
Solids cleaned from sand surface for fill or fertilizer

5. TRICKLING FILTERS



6. ACTIVATED SLUDGE



harmless, but it may cause rapid growth of algae or weeds. This can be offset by the not too expensive use of copper sulphate, sometimes called blue vitriol. If not used in too great quantities, this will not hurt animal life.

At all times remember that a land plant is not a thing of beauty, although it need not be unsightly, and landscaping helps a lot. However, it is not likely to be appreciated by neighbors. It is therefore important to place it as far from habitation as possible. The farther from houses, the more the cost of pumping, especially if the elevation is great. Also, the longer the run back to the sea, the more land damages can be claimed by those whose artistic sense tells them they have been damaged as the result of effluent discharged into the drainage course.

Probably the best system is that now frequently found where the sewage plant of one town is carefully put over the line into the next town. It is queer how little the sewage—your sewage—bothers you when it is in the next town.

Cost

No attempt can be made to give costs of any system, nor comparative costs of various systems, beyond this: Most towns are above sea-level; it follows, then, that the cost of pumps, the size of pumps, and the work they have to do, is less in sea disposal than if the same sewage has to be pumped up-hill.

Therefore, upkeep or operating costs for sea disposal should be less than in a land plant once the system is installed. On the other hand, since much of the work must be done under water and at a considerable depth to boot, the cost of construction may well be much greater.

The costs of the different kinds of land plants will depend a lot on local conditions and also on how much purification has to be done. Tanks of one kind or another for separating the solids and partly purifying the sewage are usually necessary, whatever kind of sewage treatment is adopted. For small towns or cities where there is plenty of level, sandy soil at a fairly good distance from houses, tanks and sand filters are often the most economical to build and operate. Where conditions are not favorable for sand filters or where a good-sized city is to have its sewage treated, tank treatment and trickling filters, or tank treatment and activated sludge, are likely to be best and cheapest. Tanks and trickling filters are usually more costly to build, but cheaper to operate than tanks and activated sludge. Sand filters cover the most area, and activated sludge plants the least area, for taking care of the sewage from the same number of people. This fact has an important effect on the cost of the land to be secured where land is expensive.

Comparative costs may be completely upset by local conditions. The discussion above, however, will show what to watch for in attempting to construct the cheapest efficient system.

A City Getting Out of Debt

A PRACTICAL plan of debt reduction which, after a voluntary trial by the municipal government, has been written into the city charter of Utica, N. Y., was described by Mayor Vincent R. Corrou at the annual Conference of Mayors of the State of New York at Niagara Falls in June. Mayor Corrou, who was named Vice-President of the Conference for 1939-40, discussed the financial plight of his city, with bonded indebtedness totaling $12,778,600 when he took office in 1936, as contrasted with a debt of but $1,815,331 when Utica became a second-class city in 1908, and added:

"We considered what this indebtedness meant to the citizens of Utica, translated in terms of increased taxes. We found that the city was paying slightly more than 50 cents of every tax dollar for debt service, including interest and principal payments on bonded indebtedness. . . .

"How could we bring debt reduction about? The solution seemed simple enough. An individual or business concern which wishes to keep in a healthy and solvent financial condition must follow one cardinal principle—pay back, each year, more than it borrows.

"And that simple, common-sense business rule is exactly what we have been following in the city of Utica since I recommended, and our Common Council adopted, a local law which made yearly debt reduction mandatory by providing that the city could not issue, in any one year, more than 75 per cent of the bonds retired in that year. In other words, we determined to pay back more than we borrowed each year and thus guarantee a steady, yearly reduction in our bonded debt.

"Any plan to reduce debt, municipal or private, must be followed systematically over a period of years. . . . Obviously, for my administration to reduce the debt and for some successive one to scrap this policy in favor of unlimited borrowing, would not effect any permanent debt reduction, nor would it reduce taxes. This was the only weakness in our local law of mandatory debt reduction: it could be repealed.

"To eliminate any possibility of this, and thus insure that the plan would be followed without deviation in the years to come, we caused it to be voted upon by the electorate at last fall's general election. As a result of the people's mandate, it is now a permanent part of the charter of the city of Utica. . . .

"Now that we have considered the method by which Utica is a city getting out of debt, let us see what already has been accomplished in three short years in the matter of dollars and cents.

"At the end of our last fiscal year, on December 31, 1938, the bonded indebtedness of $11,386,592 was the lowest in ten years. This represented a decrease of $1,292,009 from January 1, 1936. By the end of this year, when I shall have completed my second two-year term, it will have been decreased at least $1,682,241 for the four-year period.

"The bonded debt of Utica today is the lowest it has been since 1929. The item of interest in our 1939 budget is the lowest it has been since 1926. Mainly because of this planned economy, Utica's tax rate was reduced this year $2.74. It has been steadily increasing prior to this year, mainly because of our municipal debt. To my mind, debt reduction is the salvation of cities today, for, with our decreased assessed valuations and the insistence of our people that no services be curtailed, there can be no other way of definitely reducing the cost of government."

Earl D. Mallery Appointed Executive Director, AMA

The Executive Committee of the American Municipal Association announced on August 1 the appointment of Earl D. Mallery as Executive Director of the Association, to succeed the late Clifford W. Ham. Mr. Mallery was for three years Manager of the Association's and Southern League's Washington offices. He served as Mayor of Alliance, Nebr., from 1928 to 1932, and as City Manager from 1932 to 1935. The headquarters of AMA are at the Public Administration Clearing House, 1313 East 60th Street, Chicago, Ill.

New Land Acquisition Procedure Benefits City and Landowners

By STANLEY M. ISAACS
President of the Borough of Manhattan, City of New York

THE Office of the Borough President of Manhattan is busily engaged in the construction of the East River Drive from 49th Street to 92nd Street, where it joins that section of the Drive originally developed jointly by the Office of the Borough President and the Triborough Bridge Authority as part of the approach to the Triborough Bridge.

Under a previous administration, the proposed Drive, which ultimately will extend from the Battery to the Harlem River Speedway, was designed to skirt the East River north of 49th Street, leave the river at 53d Street, dive into a tunnel past Sutton Place, and deliver all traffic into York Avenue at 60th Street. This seemed wholly unsound and unsatisfactory to me It made impossible a through drive without traffic lights. It abandoned a substantial part of the East River frontage to private ownership, instead of reclaiming it for the city.

Accordingly, when I took office, I instructed the newly appointed Commissioner of Borough Works, Walter D. Binger, and the Chief Engineer of the Borough of Manhattan, Lester C. Hammond, to revise the plans and to develop the Drive along the waterfront, suggesting that in those sections where the space between the shore and the bulkhead line was very narrow the Drive might be double-decked. The old plans were withdrawn from the Board of Estimate and new plans were speedily prepared along these lines. The work is now well under way with the aid of a PWA grant, and should be completed in about a year.

The new proposals carry the Drive in front of many valuable private properties — River House, for example, and the costly residential development at Sutton Place. Much of the value of these properties depends upon privacy; and in some cases upon access to the waterfront.

Separate Agreements Meet Special Needs

The usual method of land acquisition involved blanket condemnation of all lands, easements and rights which were required by the city. Instead, in the case of the East River Drive, the Commissioner of Borough Works, under my instructions, has endeavored to work out separate agreements with many of the waterfront owners. The construction of the Drive is being planned and adapted to their particular needs. In return, the owners are surrendering to the city their rights for a nominal consideration.

This procedure has two great advantages. In the first place, it lowers the cost of land to the city very materially. Work of great value to the owner can be done by the city for less than the owner would be apt to receive under condemnation. Further, the city avoids the uncertainty of court awards and the possibility, in some cases, of paying heavy consequential damages. Secondly, these arrangements in many cases are of great advantage to the owner. Land which he retains is increased in value because the design of the thoroughfare has been adapted to the problem of the adjoining owner. The net result is property retained in private hands enhanced in value and subject to future taxation by the city, instead of land taken by the city and accordingly taken out of taxation. A few instances can be detailed to illustrate the method used:

Elevated Playground for School

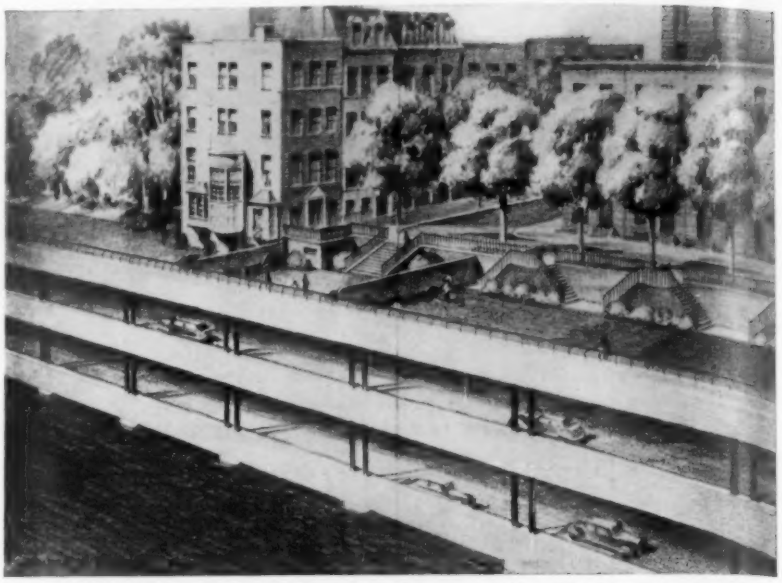
The Brearley School is located on the block front from 82nd to 83rd

EAST RIVER PARK, MANHATTAN, NEW YORK CITY
A new park adjoining the East River Drive

Streets, resting on a high bluff facing the river. This bluff was excavated below street grade, and the auditorium of the school and several rooms are located below grade. The school playground was located on a pier near water level. Here the Drive is triple-decked: one level for northbound traffic, one for southbound and one for pedestrians. It blanked the front of the building to a height of about two-thirds of the ceiling height of the auditorium, cutting off light, air and access; and eliminating the playground as well. It was vital to the school that the playground be replaced—this was more important to it than any material result of a possible claim for damage. Accordingly, the school and the city have entered into an agreement by which the city is building for the school, at the city's expense, a fourth deck over the promenade and leasing it to the Brearley School for a period of some fifty years at a rental of $1 a year. The Brearley School, in turn, is limiting all its claims to $1 and surrendering all its riparian rights and rights of access to the Drive. The cost of this structure to the city is far less than the estimated value of these claims and rights, but, on the other hand, the value of the playground to the school is very much greater than any sum that it might receive; without it the school would find it hard to continue its work.

Garden for Apartment House

Another example might be given in connection with Sutton Place South—the block front from 56th to 57th Streets. Here a 13-story apartment house of the finest type of construction fronts on the river. The Drive is planned to run somewhat below the level of the apartment-house terrace. The owners were very desirous of having the Drive covered to avoid the noise, odors and appearance of passing cars. Accordingly, they entered into an agreement with the city by which the city agrees to deck over the Drive, covering the deck with sufficient top-soil for planting. The owners are contributing $15,000 toward the cost of the deck. They lease the use of this deck for fifty years for $1, and in turn the city receives from these owners a surrender of all access to river and Drive and a limitation of all claims to $1. Here, again, the privacy of the apartment house was preserved and its value enhanced, and the net cost to the city was undoubtedly less than the sum it would have had to pay for easements and riparian rights.



Special Development of East River Drive Between 57th and 58th Streets by Which Property Owners and City Both Benefit

Value of Taxable Properties Enhanced

As a final example, the solution of the problem near the Sutton Place development, running from 57th to 58th Streets, possibly the most costly and attractive group of small private residences in the city, is worth more detailed description. The owners of the separate houses have formed a corporation, which holds title to the courtyard and river frontages. The Drive is double-decked here and also runs under and forces the demolition of one private residence overhanging the river. In this case an agreement was made with the corporation representing all the owners, by which the upper level of the Drive was to be decked over. The corporation pays the full cost of covering the Drive and surrenders all its riparian rights and rights of access for $1. The city conveys to the corporation all the land over the Drive and a narrow strip west of the Drive to be used as a garden only, restricted against all construction.

The owner of the building which had to be destroyed entered into a separate agreement, by which she received the appraised physical value of her residence, namely, $49,000; and the city agrees to build the upper deck of the Drive so that it will support a new four-story and basement building, the equivalent of that destroyed. The owner, obtaining the use of this deck for her new residence, releases in turn to the city all her rights and easements for $1. Here, too, the net result is privacy retained, the value of costly

East River Drive, New York, Showing the Brearley School Playground at 83d Street

private property enhanced, the charge to the city moderate, and a great advantage to the city in the future because, instead of taking land and destroying taxable values, it has enhanced the value of taxable properties.

Safeguarding the Agreements

All the agreements varied. In one instance the city is receiving a release of all the easements and rights by constructing a footbridge and dock for the adjoining owner. In another case, a steam company is releasing its rights in return for the construction of a conveyor tunnel under the Drive carrying coal and supplies from barges on the river to the plant.

In every case, the agreements drawn were passed upon by a real estate expert retained by the Borough President of Manhattan, and two experts retained by the Corporation Counsel. Every agreement, first approved as to the form by the Corporation Counsel, was submitted to the Board of Estimate and passed on by the Chief Engineer of the Board. Needless to say, every agreement, which was worked out with great care by Commissioner Binger and Chief Engineer Hammond, was carefully studied and approved by me before it was submitted.

Land-Value Gains Could Lighten Gasoline Taxes

IN the proposed Works Financing Act of 1939, which failed of adoption at the recently adjourned session of Congress, an important feature that merits consideration in future Federal-aid legislation is that for financing new highways in part by the increased land values they create, and thus lessening the need for highway tolls or heavy gasoline and motor-vehicle taxes. Section 5 (g) of the bill (S. 2759) would have given to the Public Roads Administration the power:

"To acquire by purchase, but not by condemnation, for investment purposes, any real property in the vicinity of any highway improvements or Federal-aid construction if, in the opinion of the Commissioner of Public Roads and the Reconstruction Finance Corporation, the price at which such real property may be purchased is such as to make it probable that the United States will, as a result of appreciation in land values resulting from any highway improvement or Federal-aid construction, be able to dispose of such property, within twenty years, at such a price as to result in a profit; and to sell any such real property at public sale after advertisement and competitive bidding and upon such other terms and conditions as the Commissioner of Public Roads and the Corporation may in their judgment deem in the public interest."

A supplement to the printed report of the Hearings (July 14-20, 1939) on S. 2759 before the Committee on Banking and Currency of the United States Senate contains an important Memorandum on Some Legal Aspects of the Federal Power of Eminent Domain by Alan Johnstone, General Counsel, Federal Works Agency. The summary of this Memorandum concludes that:

"(1) Congress may constitutionally authorize the taking of land by condemnation with or without the consent of the state in which the land is located; (2) Congress may constitutionally authorize the acquisition of land already devoted to a public use; (3) the Federal Government may acquire property adjacent to highway improvements, the value of which is increased thereby, as an appropriate and economical means of carrying on the construction of highway improvements authorized to be built under the Constitution; (4) obtaining exclusive legislative jurisdiction over property acquired by the United States is not a constitutional prerequisite to the expenditure of Federal money thereon, nor essential to the carrying-out of the Federal purpose for which such lands are acquired."

Discussing the acquisition of land in excess of that actually used in highway construction, General Counsel Johnstone expresses the opinion that:

"The power to finance in the most appropriate and economical manner the construction of highways, which are clearly within the power of the Federal Government to build, may be effectually denied to the United States if the power to acquire adjacent property by eminent domain is denied. In order to go forward with highway improvements, the program must to some extent be financed by the increased property values created by the program, because the tolls to be charged for the use of some of the improvements will not alone be adequate for the purpose of recovering the expenditure. The taking of adjoining property would seem clearly to be a valid exercise of the right of eminent domain by the Federal Government in direct furtherance of its power to build highways. . . ."

In the above-mentioned hearings Commissioner Thomas H. MacDonald of the Public Roads Administration expressed the opinion that the land problem is holding back public works development in this country more than any other problem. The possibility of coordinating the highway building program with the efforts which cities are making to rebuild their slums and blighted areas was stressed. Citing Baltimore as an example, and displaying a map on which were spotted many parcels of property around the center of the city that the municipality had taken over for failure to pay taxes, Mr. MacDonald said:

"That interested us, then, in this decadent area around the center of Baltimore, and we began pushing our investigations into other cities, and we find that this is a disease that is prevalent in all other cities—the decadent area right around the centers of our largest cities.

"We went a little further and found that there were millions, and perhaps billions, of dollars tied up in mortgages held by the banks on these properties that are not paying interest and not paying enough income to keep the properties up, and there are actually properties that are being abandoned by their owners because they are unwilling to pay taxes and to keep up the property on account of no income.

"We find, after three years of study of this situation, that there are literally hundreds of millions of dollars tied up in unproductive property right around the centers of our big cities. I checked that in most of the large cities with the authorities, and they agree.

"There [indicating on map] is a location where land has been bought for slum clearance. Here is another one [indicating]. But that property bought in the slums, unless something is done to revive and recreate values in those areas, will become slum area within a limited period of time.

"The proposal we have is to start the reviving of these property values and relieving traffic congestion by the building of roads right in the hearts of the cities."

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Developing a Texas Airport

Stinson Field, Municipal Airport of San Antonio, Texas, Leased for Operation to a Private Individual

THE annual operating deficit current at so many municipal airports has been eliminated at San Antonio by leasing the field to a private operator who maintains and operates it and pays for the current required for lighting. The city makes all capital improvements and has recently completed the installation of all standard lighting equipment for night operation.

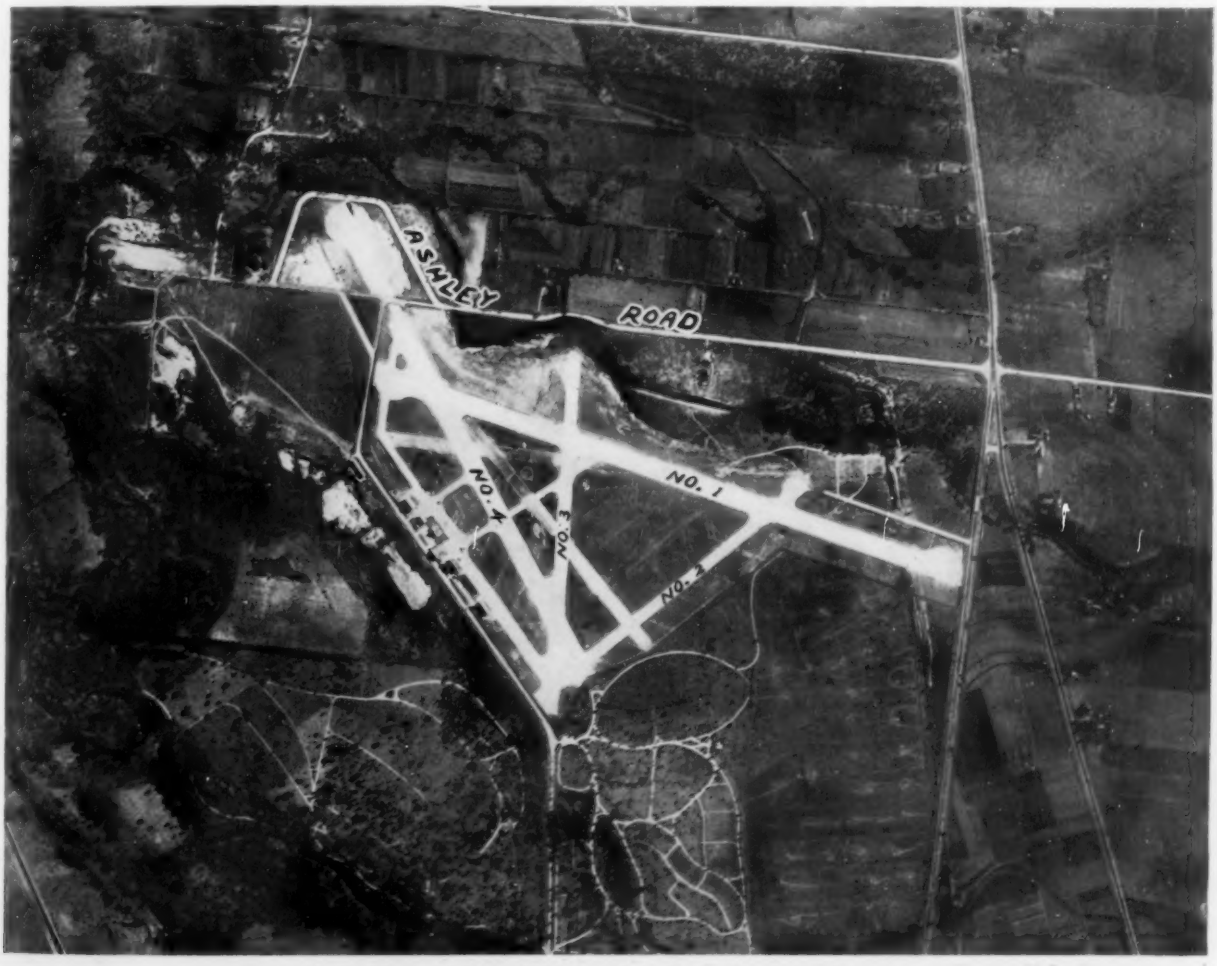
The present San Antonio Municipal Airport was one of the first in the Southwest, having been started in 1912 by Mrs. Catherine Stinson and her two daughters as a private field. They taught Eddie Stinson, their son and brother, for whom the port is now named, to fly.

Drainage and Lighting

The field contains 310 acres with four runways with graveled surfaces. These runways are: north and south, 100 feet wide and 2,700 feet long; east and west, 150 feet wide and 5,000 feet long; southeast and northwest, 150 feet wide and 4,800 feet long; and northeast and southwest, 100 feet wide and 3,100 feet long. The last runway is seldom used, while the east-west and southeast-northwest runways are the most used, as they conform to the prevailing winds.

The field drains toward Rock Creek on the southeast side of the field. The well-graded dense surface aggregate of the runways is underlaid by a series of French drains, which with the slope of the field completely drain it after hard rains in about one hour.

The only paved section of the field at present is the 100 x 200-foot concrete loading apron in front of the administration building. This is 6 inches thick.



An Air View of Stinson Field, San Antonio, by Kargl Aerial Surveys

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INTERNATIONAL TRUCKS

The lighting of the field for night flying has only recently been completed, as a WPA project. Complete boundary lights in white on a series circuit as well as white runway markers and green guide lights have been installed. There is need for but one set of obstruction lights and those are on a house. All telephone and telegraph cables and power lines in the vicinity of the field are underground where there can be no possibility of disastrous accidents from planes becoming entangled because of poor take-offs or gliding in too low.

Floodlighting of the runways is done with two 3-kw 10-degree floodlights 200 feet off the end of each runway. A 180-degree 1-kw floodlight is installed to pick up the triangle of shadow between the other two narrow beam lights. A 5-kw floodlight and two 1-kw lights are installed on the administration building to light the apron and hangar area.

The wind tee is lighted and is located within a large, clearly defined circle containing also the north arrow in front of the administration building. A white beacon on top of the administration building has recently been changed to the standard green and white and flashes the field's code "ZN." All the floodlight equipment on the field was furnished by Crouse-Hinds, and the new boundary cones are made by Westinghouse.

One municipal hangar has been built at the field, but at present it is being used as a WPA office and for storage. There are six privately owned and operated fireproof sheet metal hangars at the field. A total of 45 private planes are based at Stinson field, including ten ships of Edgar Tobin Aerial Surveys and seven of Kargl Aerial Surveys. Twenty-four-hour repair service is available at the field through the private organizations using the hangars.

Eastern Air Lines running to New York, and Braniff Air Ways running through San Antonio from Brownsville, Texas, to Chicago, maintain regular service here.

There are three municipal operators at Stinson Field and a total of sixty-nine employees covering all services.

The Quarried Stone Administration Building, San Antonio Municipal Airport

The present attractive administration building was built by relief labor from stone quarried on the airport site. On the ground floor are the lounge, a coffee shop, ticket offices for the transport lines, rest rooms and the manager's office. The service of the coffee shop is available 24 hours a day. On the second floor is the Weather Bureau office, the Civil Aeronautics Authority radio communication office, teletype service, and the radio stations of the air lines.

The interior partitions of the building are 1-inch flagstone used either bare, giving an interesting decorative effect, or plastered on one or both sides, as in the coffee shop.

Fred Harman is Airport Manager, holding the lease from the city of San Antonio. H. J. Wilson is Airport Engineer for the city in charge of all relief and other projects for the improvement of the airport. T. R. K.—932.

Water-Softening Plant, Shelby

(*Continued from page 43*)

equipment room.

A special feature of the building is a plate-glass covered sight well, in the corridor, for looking down into the filtered water in the suction basin. An underwater floodlight shines into the basin.

Sludge Lagoons

On account of the large quantity of chemicals which will be used to soften the very hard Shelby water, and also since the small stream at the edge of the city property does not provide sufficient dilution, except during periods of heavy runoff, to dispose of the sludge from the softening process, it was necessary to provide sludge lagoons. Fortunately, plenty of area was available for this purpose, on the site, and at a location which would not affect the general sightliness of the waterworks property. A total of 1.5 acres of lagoon was provided by constructing earth embankments. The lagoon is divided into two units, giving sufficient area for three years' storage or more. Outlet stop plank weirs are provided for overflowing supernatant water to the creek, and a by-pass line permits the discharge of sludge directly to the stream during high water.

A Yeomans-Carter plunger type sludge pump, located in the basement of the softener building, is provided for lifting sludge to the lagoons when necessary to completely drain the Precipitator. During normal operation, the excess sludge will be discharged to the lagoons by gravity.

The total cost of the project was $105,000, of which $74,000 covered the softening plant, and $23,000 the elevated tank, and the balance was for engineering and miscellaneous administrative expense. The PWA participated with a 45 per cent grant.

The project was handled under the direction of J. P. Adkins, General Manager of Public Utilities, reporting to Dr. D. B. Young, Mayor and Service Director. Elwood Avery represented PWA. The Curro Construction Co., of Cleveland, was the general contractor for the softening plant, and Chicago Bridge & Iron Co. for the elevated tank. The writer was the consulting engineer for the design and general supervision of construction.

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"We definitely know that the '99' is cheaper operating and more effective for our purpose than any other piece of equipment on the market. Our total gas bill has been $388.00 for eleven months. Maintenance costs have been negligible. Last summer we rented the '99' to a grading contractor and a nearby village, netting $840 in rentals from these sources. We have learned that the original cost is not all important with this versatile efficient motor grader. Our additional investment has paid us substantial dividends."

Write for full details on 4-Wheel Drive, 4-Wheel Steer, Controlled Traction, Stabilized Frame and other exclusive "99" features that assure extraordinary performance on "impossible jobs" and substantial savings on routine motor grader work. THE AUSTIN-WESTERN ROAD MACHINERY CO., Aurora, Illinois.

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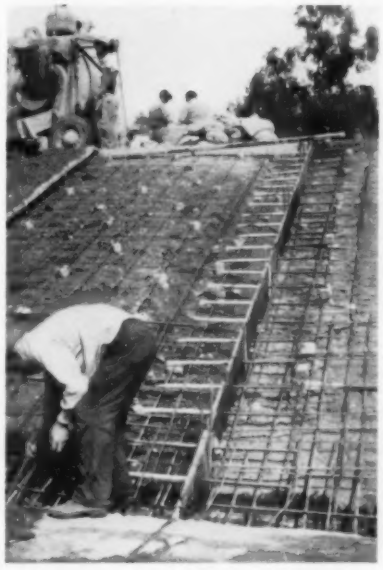
When you write for that catalog, kindly mention THE AMERICAN CITY.

Flood-Control Channel Lined

Long Project in Pasadena, Calif., Built to Prevent Further Flood Damage

THE historical flood of March 2, 1938, did great damage to public and private property in Pasadena, as elsewhere in Los Angeles County. Normally, floods are unknown in Pasadena, but on that fateful March 2 there was a flow of 7,000 cfs below Devil's Gate Dam and a measured inflow of 12,000 cfs, both unprecedented figures. The result was $100,000 damage to the municipal golf course and the grounds adjacent to the Rose Bowl of New Year's fame. The total damage along the Arroyo Seco from this one storm was nearly $700,000. Several concrete footbridges along the old line of the stream were moved laterally as well as downstream.

A program of straightening and lining Arroyo Seco for a distance of 12,000 feet in Pasadena was instituted by the city as a relief measure, for labor as well as property, providing a capacity of 20,000 cfs with one-foot freeboard and 16,000 cfs with 2½-foot freeboard. Both rectangular and trapezoidal sections are being used for the concrete lining. In July, 1938, work started



Completing the Steel for an Expansion Joint

with two bulldozers, followed shortly by two large draglines, cutting the straightened channel, which in one place went through an old dump containing 20 feet of tin cans. Where there is a curve in the channel, the outer side is raised 2 feet to take care of the superelevation in the flow of the water.

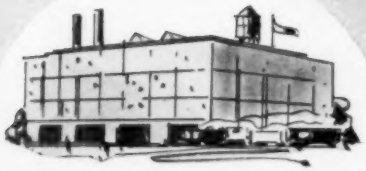
Concrete Slab Construction

The first work done was to place an invert in the section of Arroyo Seco to be paved, and then followed the more difficult work of paving the slopes. The invert paving is 6 inches thick in the trapezoidal section, and the side paving is the same. Expansion joints are placed in the side paving every 50 feet, and at each joint the paving is thickened to 9 inches. The joint contains ¾-inch round dowels 3 feet long, with galvanized tubes over one side, which has been painted to prevent adhesion of the metal and any grout that may flow into the tube. The side slabs are reinforced with ⅜-inch bars on 12-inch centers both ways.

To provide for the drainage of ground water behind the slabs, 4-inch vitrified tile weep-holes are set into the slab every 10 feet along the slope about 5 feet from the bottom. At the top the slab is curved to fit the contour of the ground.

Pouring a Reinforced Concrete Lining Slab in the Arroyo Seco in Pasadena, Calif.

BIG or LITTLE



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WATER CONDITIONING *Headquarters*

Invert Paving

Three steel yards were established along the job, where the reinforcing steel, bought direct from the mills and cut to the required lengths, was stored ahead of the work. The paving of the invert was done with a Rex 27E paver running on the bottom of the channel and supplied with the batched material from stockpiles along the top. A traveling gantry bridge was built to run along the top of the channel on two pneumatic-tired wheels, and another pair at the bottom. Planks for the wheels made movement easy when needed. The aggregate were batched with Jackson Mfg. Co. pneumatic-tired wheelbarrows struck off with a board. The skip of the paver was let down to a large frame which held it horizontal, and the material was dumped off the bridge at the top into it. There were about 15 men wheeling to supply the paver with a single batch of 18 cubic feet of sand, 6 cubic feet of ¾-inch stone, 18 cubic feet of 1½-inch stone, and 3 cubic feet of pea gravel for the 5½-sack batch. The barrows measure 3 cubic feet each when struck off. The concrete was designed for a 2-inch slump and a 1½-minute mix.

The crew on concrete consisted of one man watching the skip, the paver operator, four puddlers, two screed men and two finishers. One man ahead sprinkled the grade, and three trimmed the grade where it had been cut up. This crew was able to pave 190 feet of invert 35 feet wide in 8 hours.

Bridge from Top of Bank Makes Batching Easier to 27E Paver Running on Bed of Arroyo Seco While Pouring Invert

Paving the Slope

The slopes were built up of disintegrated granite hauled in over a conglomeration of odd-sized boulders which had been left by the flood. This was consolidated and rolled and finished before paving started on the 2 to 1 slope. For slope paving, the mix was held to a 1½-inch slump and mixed 1½ minutes in one of the two Rex 14S-mixers. The ¾-inch aggregate, pea gravel and sand was stockpiled along the top of the slope and batched by volume, using the rubber-tired barrows with eight men wheeling. The equivalent of a 6-bag batch was used, with the following quantities of material in cubic feet: 3 of cement, 9 of sand, 9 of ¾-inch stone, 3 of 1½-inch stone, 1½ of pea gravel. Water for the mixers and paver was supplied by a water line laid along the top and connected to the city mains.

The mixed concrete was shoveled down the slope over the reinforcing by four men and then two men worked it down uniformly with a heavy 2 x 4 screed riding on a pair of guides set 10 feet apart. Four hand finishers completed the work. At the start of the work vibration was tried to secure greater density of concrete but it "walked" the mix down the slope so rapidly that it was abandoned. The slope concrete is cured by sprinkling or with Curerite.

The reinforcing mats for the slopes were assembled complete on the invert and pulled up into place, while the reinforcing for the invert was assembled ahead of the work and then pulled back into position.

The paving of the Arroyo Seco Flood Control Channel was done as a WPA project under the supervision and inspection of the City Engineer, Harvey W. Hincks.

T. R. K. 949.

El Segundo Water Treatment

(*Continued from page 53*)

are also located on this floor, this being the main operating floor for the entire plant.

On the third floor there is a small lime storage room, sufficient in size, however, to take care of one day's supply of chemical. An elevator is provided so that lime may be transferred from the main lime storage room on the ground floor to the third floor. This elevator is of the platform type and is also used to transfer water meters to the repair shop.

The operating building faces a public park maintained by the city. It is beautifully landscaped, and the building was placed on the central axis of this park.

The city of El Segundo, through the facilities of this water-treatment plant, which was placed in operation in October, 1938, now has a clear, cool, potable, soft water, of which every consumer is proud.

Carl Wilson of Los Angeles was Water Technologist for the city. The engineering plans and specifications were prepared by the author, and Floyd Ray designed the architectural features of the operating building. The plant was built under the direction of R. T. Hutchins, City Engineer, and his assistant, Frank Chilson. The cost of the water-treatment plant was $64,000, of which $12,000 represents the cost of the operating building.

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Improving Brick Pavements in Battle Creek, Mich.

A History of Paving from 1886 to 1938 with Costs and Methods

By MARK A. CHAMBERS
City Engineer

THE city of Battle Creek lies in a valley at the confluence of the Kalamazoo River and Battle Creek Stream. The 1930 census gave the city a population of 43,560 persons. Battle Creek is well known for the Battle Creek Sanitarium, the Postum Company, the Kellogg Company, the Ralston Company, and the Battle Creek Food Company, all manufacturers of breakfast foods. Other products include pet foods, paper cartons, farm machinery, printing presses, gas and electric stoves, baking ovens, printing inks and locomotives.

There are 158 miles of streets within the city, 74.8 miles of which are improved. They are classified as follows:

Brick	253,662	sq. yds.
Asphaltic concrete	82,666	" "
Sheet asphalt	76,607	" "
Concrete	285,098	" "
Concrete resurfacing	30,748	" "
Oil aggregate	431,235	" "

The first pavement laid in Battle Creek was of cobblestone, laid in 1886. The first brick pavement was laid in 1898 on Main Street, now known as West Michigan Avenue. It has since been replaced with another brick pavement, laid during 1934. The pavement on Capital Avenue and Main Street was laid in 1897, 1898, 1901, 1909 and 1914. The cost of constructing these pavements averaged $1.259 per square yard, with a minimum of $1.178 and a maximum cost of $1.36 per square yard.

Character of Work

During the summer of 1938 the city, in cooperation with the WPA, undertook a project of rail removal and pavement rehabilitation on Main Street, McCamly Street and Capital Avenue. Work was started on Main Street during March and completed June 17. The street is 42 feet wide, and the improvement extended a distance of 3,065 feet. A single-track street railway and 300 feet of switch were removed and an 8-inch concrete base was laid in the street-railway location. The brick was salvaged and relaid on a mastic cushion, and street and driveway intersections were improved by increasing the radius of the curb turnouts. The work on Capital Avenue consisted of the installation of 332 feet of 8-inch and 731 feet of 12-inch sanitary sewers, 987 feet of 12-inch storm sewer, the widening of the street 2 feet on either side, and the installation of a new lighting system. A total of 7,599 feet of street was improved, or 37,141 square yards of pavement laid.

The Main Street improvement cost $44,605.70, of which the city expenditure, including equipment rental, amounted to $5,823.16, or $0.38 per square yard. A total of 90¼ tons of rail was salvaged and sold at $11.00 per ton, amounting to $992.66. Therefore, the net cost of this project to the city was $4,830.50.

The total cost of the Capital Avenue improvement was $75,879.91. The street was widened 4 feet; 4,684 feet of curb was graded, reset and rebuilt. This necessitated the rebuilding of 4,000 square feet of sidewalk, the setting of gates at the Michigan Central Railroad, and the setting of 58 light standards for a new and improved lighting system. Credits for salvaged rail and salvaged brick used for other purposes reduced the cost to $67,098.11. This also included the salvage of brick and relaying with new brick one block on McCamly Street.

Organization

All three of these streets are devoted principally to business for the greater portions of the distance improved. Therefore to expedite work the construction crew of 170 men was divided into 8 groups as follows: a crew of 12 to 16 men removed the brick and piled them on the curb; a crew of 60 to 70 men cleaned, sorted and re-piled the brick; a third crew of 10 to 12 men removed the street-car rails, cut them into 3-foot lengths and corded them on the curb; a fourth crew of 10 to 12 men removed the wood ties and concrete; a fifth crew of 20 to 24 men subgraded and laid the concrete base. The 1:3:6 concrete was mixed for not less than three minutes and just sufficient water was used to produce a concrete that could be placed without too much spading, giving a high early strength concrete. A sixth crew of 8 to 10 men gathered, screened and mixed the cushion sand with a cut-back asphalt. This mastic was spread and struck off with a templet. A seventh crew of 8 to 10 men delivered the brick from the piles at the curb to 3 bricklayers, who dropped them. They were then rolled and checked for variations in contour of the street crown grade, and broken and irregular brick were removed by a crew of 3 men. A crew of 12 men poured the brick joints with an asphalt-filler.

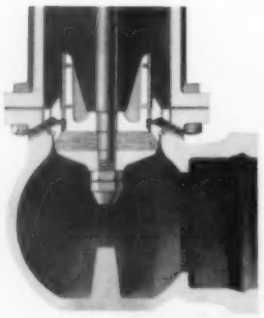
These crews were organized in duplicate, each crew working five hours per day. The operations of the different crews were so regulated that not more than two blocks of street were closed at any one time. Traffic could come to either end of the construction and be within one block of any business place. At no time during construction was traffic kept away from any place of business for more than 45 days, and the average time was 30 days. The street was opened as soon as the joints were filled and the street cleared of brickbats, rails and other refuse incidental to such

CAN THIS HAPPEN

IN YOUR TOWN?

What happens in your town when a hydrant is struck and broken? Are you confronted with flooded streets—with a small geyser that is very apt to cause additional damage, or are your hydrants Mueller-Columbian that are built to withstand traffic accidents or accidental breakage without danger of flooding.

IT CAN'T HAPPEN TO A MUELLER-COLUMBIAN



The Mueller-Columbian is a compression type hydrant and the leather seat of the valve is held securely in place by means of the pressure of the water, regardless of what may happen to the top of the hydrant. The full-facer taper averts of the possibility of pulling the leather valve through the seat ring opening, either through excessive pressure or too much force on the operating stem. These features mean a hydrant that cannot flood. Ask any Mueller representative for further details or write us direct.

MUELLER CO.
CHATTANOOGA, TENN.

construction project.

The Base

The base under the old pavement was found to be in excellent condition, although it was a very lean porous concrete. At no place was it found to be broken, and it was all utilized. Where the contour of the street was changed, at street intersections to remove dips on the cross street, a fine aggregate concrete was used to bring the base to the proper elevation. I should judge the old base to be about 1:15 of bank-run gravel and mixed very wet. The car track occupied a 9-foot strip in the center of the street, and the new base was laid 8 inches thick and a toe was extended under the old base 6 inches wide and 6 inches thick to reinforce it. The quick setting of the base allowed the placing of the mastic cushion and the laying of the brick the following day, and within 48 hours the concrete was of sufficient strength to allow the brick to be rolled.

The Mastic Cushion

The mastic cushion was composed of clean sand of the following sieve analysis with 5 per cent of cut-back asphalt:

	Screen	Per Cent Passing
Passing	40	90
"	60	39
"	80	21
"	100	7.0
"	200	0.5

The specifications for the cut-back asphalt are:

To meet Michigan State Highway Department Specification MC-1A.
Flash point tagliabue open cut Min. 26.7° C.
Viscosity Saybolt Furol Sec. 25° C. Min. 40, Max. 150
Distillation Test per cent volume 225° C. Min. 10
Distillation Test per cent volume 315° C. Min. 25
Distillation Test per cent volume 360° C. Min. 40
Penetration of distillation residue 25° C., 100 gr., 5 sec. Min. 60, Max. 110
Ductility of distillation residue at 25° C. (CMS) Min. 60
Total bitumen soluble in CCL_4 (Distillation residue Min. 99
Sulphur content of residue, per cent Min. 3

The mastic cushion was mixed in a 7-cubic-foot mixer, and while there was a slight balling of this material the balls were very small and little or no segregation took place when spread on the base. When struck off it looked quite homogeneous and set within 6 to 8 hours, forming a very substantial cushion. The thickness of the cushion varied from ½ to 1½ inches because the old base was not struck. The average thickness was ¾-inch.

Laying Brick

The laying of the brick followed closely the placing of the cushion. As soon as sufficient area was laid, they were rolled and checked for grade with a 10-foot straight-edge. Where the surface varied more than ⅛-inch the brick were lifted and relaid to grade and rolled again.

The filler was flushed into the joints by spreading it on the surface of the brick hot, after the surface had been sprayed with a solution made by dissolving 100 pounds of calcium chloride in 25 gallons of water and adding 3 pounds of starch. This was made in a large steel drum mounted on a pneumatic-tired cart. The liquid was sprayed by means of a hand spray pump attached to the drum. This method insures a watertight job, for the joints are completely filled.

The filler used was an non-exuding blended asphalt which met the following specifications:

The asphalt filler shall be homogeneous, free from water and shall not foam when heated to 230° C. (446° F.).
Specific gravity at 25° C. (77° F.) not less than 1.00.
Flash point (Cleveland open cup) not less than 280° C. (536° F.).
Softening point (ring and ball) not less than 101° C. (214° F.); not more than 110° C. (238° F.).
Penetration at 0° C. (32° F.) 200 grams—60 sec., not less than 12.
Penetration at 25° C. (77° F.) 100 grams—5 sec., not less than 23, not more than 32.
Penetration at 46° C. (115° F.) 50 grams—5 sec., not more than 47.
Ductility at 25° C. (77° F.) 5 cm min. not less than 14 cm.
Loss at 163° C. (325° F.) 50 grams—5 hrs., not more than 0.3 per cent.
Total bitumen soluble in CS_2 not less than 99.3 per cent.
Total bitumen insoluble, in CCL_4 not more than 0.7 per cent.

Costs

These improvements covered 7,599 feet of 40,- 42- and 46-foot width streets for a total of 37,141 square yards of pavement. The total cost was $120,485.61. The WPA spent $83,435.69 for labor and furnished $4,816.00 worth of material. The city spent $2,661.69 for labor and supervision, furnished $25,314.16 worth of material, and equipment rentals amounted to $4,258.07.

The Main Street job cost a total of $2.921 per square yard. The cost to the city was $0.382 per square yard. The Capital Avenue and the McCamly Street jobs cost a total of $3.061 per square yard. The city cost was $0.804 per square yard. One half of the yardage was laid with new brick and the other half with salvaged brick.

Conclusion

Bricks that were whole, except those badly chipped, were used in the pavement. The chipped brick were used for building sewer and water valve manholes. Parts of brick we are using to pave alleys, and the bats will be crushed and used for concrete aggregate or for a base for pavements. Salvaged brick have been used for many other purposes, for a previous N.R.M. paving job removed many thousand brick.

Owing to this project, the city now has 1.44 miles of modern improved streets which will, with proper maintenance, give service for the next fifty years. These improvements were done with a reasonable outlay by the city and with a minimum of inconvenience to business along the streets.

During the depression the tendency has been toward the construction of low-first-cost pavements regardless of the traffic they will be called upon to carry. Maintenance costs are as unavoidable as death and taxes. These brick pavements have already served the residents of the city well, and at a minimum ultimate cost per square yard. With the improved type of construction and materials used in repaving, the pavements should show a better service record and a lower ultimate cost per square yard than the original pavement.

ACKNOWLEDGMENT.—From a paper presented at the 33d Annual Meeting of the National Paving Brick Association.

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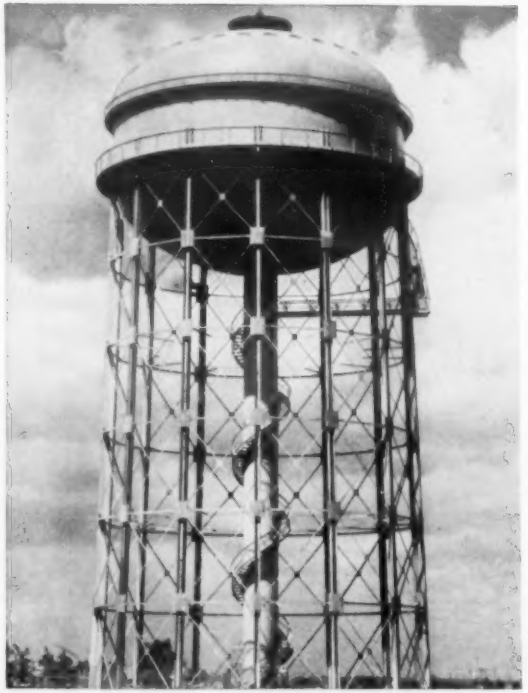
LONG ISLAND ON PARADE

Village of Freeport, Freeport, L. I.



Village of Garden City, Garden City, L. I.

West Hempstead Water District, West Hempstead, L. I.

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Dixon's Aluminum-Graphite Paint is the common denominator used to determine the lowest cost per year of service for paint protection. It was chosen to protect the exteriors of the above outstanding examples of up-to-date development in water tank design.

The natural flake graphite in the pigment has great covering power, is water-repellent and chemically inert. The vehicle of pure boiled linseed oil cements the flakes of graphite and aluminum into a uniform, impervious coat of protection.

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Lowest cost per square-foot-year when used on tanks, flumes, boilers, stacks, valves, hydrants, meter and curb boxes, pipes and fittings, sluice gates and many other types of equipment exposed to the elements and corrosion.

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Cracks in Asphalt Pavements

Summary of Study by Prominent Asphalt Technologists

THE hardening of asphalt has been studied with particular relation to the development of cracks in different types of asphalt pavements. Prevost Hubbard and Henry Gollomb have discussed this subject at length in the Proceedings of The Association of Asphalt Paving Technologists, Volume 9. The summary and conclusions of this investigation are as follows:

1. Extreme hardness of asphalt in an asphalt pavement is conducive to cracking.

2. Contact with air is a principal cause of hardening of asphalt.

3. All asphaltic products harden progressively and with appreciable rapidity when continuously exposed in thin films to the action of air.

4. Rapidity of hardening is a function of film thickness, temperature and time. The thinner the film, the higher the temperature; the longer the period of contact with free air, the greater will be the degree of hardening.

5. Thin films of all liquid asphaltic road materials, as well as asphalt cements, may be expected to harden to low penetration brittle asphalts within a few years' time if not adequately protected from contact with free air.

6. At hot-mix paving plants asphalts may be expected to harden appreciably during their combination with mineral aggregate under customary plant operation.

7. From data at present available, it appears that the following expectancy of cracking due to hardness of the asphalt cement present in the pavement exists in temperate climates where freezing temperatures are common through the winter:

(a) Asphalt less than 20 penetration —bad cracking.

(b) Asphalt higher than 30 penetration—no cracking.

(c) Asphalt between 20 and 30 penetration uncertain.

8. An asphalt of 50 penetration, irrespective of source, may very likely be reduced to as low as 35 penetration during preparation of a hot mix, thus bringing it dangerously near the limit of penetration at which the pavement may be expected to develop some cracks.

9. In hot-mix construction, the softer the original asphalt the less likely it is to harden dangerously during the mixing operation. For such construction an asphalt of 60 penetration or softer is strongly indicated as a means of preventing hardening to a dangerous extent during the mixing process.

10. Progressive hardening of asphalt films in a dense, thoroughly compacted paving mixture is exceedingly slow. If, however, the mixture is readily permeable to air, dangerous hardening may occur within a relatively short period.

Rules to Insure Long-Lived Pavement

To insure long life, prevent cracking and possible disintegration in an asphalt pavement or wearing course due to hardness of the asphalt, the following five rules should be strictly observed:

(1) Use as soft an asphalt as possible without reducing stability below the minimum required to prevent displacement under traffic.

(2) Use as high a percentage of asphalt as possible, without reducing stability below the minimum required to prevent displacement under traffic. In this way film thickness is increased to the maximum practical extent and air permeability decreased.

(3) At paving plants prepare mixtures at the lowest practicable temperatures.

(4) Compress all asphalt paving mixtures thoroughly so that they will be as impermeable to air as possible.

(5) Seal-coat all compressed mixtures which are readily permeable to air, and thus prevent free circulation of air within the mixture.

While the principles developed in this discussion are not new, it is felt that they are so frequently violated in present paving practice as to warrant a forceful reiteration with all available supporting data. This is particularly true because of the widespread tendency to construct open-texture pavements and surfaces which are conducive to rapid hardening of any bituminous binding medium, and therefore to reduce the long life expectancy to which the asphalt pavement is entitled.

Public Housing in England

Birmingham Completes Its 50,000th Municipal House

ON JUNE 20, the Lord Mayor of Birmingham formally opened the 50,000th municipal house in Birmingham, as reported in the July issue of *Industrial Britain*. The post-war development in housing in Birmingham has been the outstanding feature of civic policy and enterprise. The total of the estimated capital commitments which the Corporation have at present reached is approximately £37,000,000, of which £23,500,000 represents the actual "all-in" cost of building the 50,000 houses. These houses represent an addition to the net ratable value of the city (that is, roughly speaking, the annual value of property) of £600,000, but their value to the city in terms of social improvement and health is incalculable. The 30,000th house was opened in 1930 by A. Greenwood, Minister of Health in the Labour Government of the day, and the 40,000th house was opened in 1933 by Neville Chamberlain.

Progress in Liverpool and Manchester

LIVERPOOL has decided to spend more than half a million pounds on the provision of homes for workers engaged in new factories established during recent months, says *Industrial Britain*. A thousand houses, to cost £431,000, to be erected in the new satellite town of Speke—where the city's airport exists—will include 74 houses of a suitable type for keymen engaged in the factories in the vicinity. The sum of £113,000 is to be spent on the provision of 192 flats in another district.

The efforts of the municipality of Manchester, England, to attract light industries to the city's publicly owned suburb at Wythenshawe* have now resulted in 16 factories, employing more than 2,000 people. A large dairy, a printing works, and an engineering plant will soon be added. The Corporation insists on smoke and noise being eliminated from the activities of factories operating there.

* See THE AMERICAN CITY for November, 1936, page 46.

Main Street, Columbia, S. C., Showing State Capitol

Another Capital City

➡ Adopts the Sturdy, Dependable KARPARK AUTOMATIC METER!

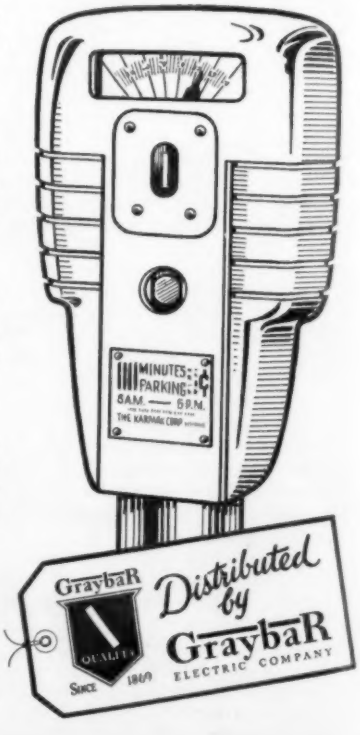
● PROGRESSIVE COLUMBIA, South Carolina, after three years' thorough investigation, has followed the lead of the Nation's Capital in selecting Karpark Automatic Meters under the rigid *original* specifications for parking meters prepared by the United States Bureau of Standards for the District of Columbia.

"KARPARK"

Columbia's seasoned city officials decided not to experiment. Only the best was good enough for Columbia. By unanimous vote City Council chose the *Thoroughbred* Karpark Automatic Meter.

The expert advice of an impartial and reliable clock maker was obtained to doubly insure the city a product of highest quality. Karpark's heavy, solid clock brass mechanism, ***sturdy pendulum escapement***, machine-cut gears and pinions, stainless steel staffs and theft-proof housing were major and convincing considerations.

An added consideration was the responsibility of the seller — The Graybar Electric Company—now celebrating its 70th anniversary. Graybar stands behind the equipment it sells, and from its 83 branch houses, efficiently serves every city in the United States.



Progressive **COLUMBIA** *has*

AND NOW

1. One of the largest municipal markets in the country. Only 1% of the produce sold is consumed locally! 2. A population nearing 65,000 and an area of 9 square miles. 3. More than One Hundred Million Dollars in real property value, with a bonded indebtedness of only Three Million Dollars. 4. Real Estate assessments at approximately 20% of value and a correspondingly low tax rate. 5. 100 miles of paved streets and 150 miles of sewers. 6. A central business section covering 30 city blocks, lined by automobiles with angle parking fourteen hours daily.

"Columbia Marches On!" with 2,000 *Thoroughbred* Karpark Meters to help solve a very real traffic problem—*the first city in South Carolina to install parking meters.*

All Karpark Meters are licensed under patents issued to VEHICULAR PARKING, Ltd.

Karpark can help solve your traffic problems, too—write or wire for detailed information!

THE KARPARK CORPORATION

420 LEXINGTON AVENUE NEW YORK, N. Y.

Clear the Way for Traffic

Los Angeles Removes Jogs in Major Highway to Ocean

LOS ANGELES is so situated that it must be provided with wide thoroughfares radiating in all directions to accommodate the daily commuting traffic as well as holiday crowds heading for the ocean, or for skiing in the mountains, a game at the Rose Bowl in Pasadena, or a race at Santa Anita. One of the latest activities in a long program to provide another artery to the ocean is the removal of a pair of right-angle turns where Olympic Boulevard crosses Figueroa Street. The average width of the boulevard before widening is 60 feet; at the Figueroa crossing the new street is 100 feet wide, which is set as the goal for the full length within the city.

The Project Initiated

The acquisition of property for this project started in 1921 under condemnation proceedings, the cost to be paid by assessments on a local district. In 1925, the Court found that there were technical defects in the proceedings which rendered them void, and the court proceedings had to be started over. By 1931 these proceedings had reached the stage of awards to owners of land taken and the spreading of assessments to pay the awards. The heavy awards, amounting in some cases to confiscation of property, coupled with the financial depression which was then approaching its maximum in Los Angeles, made it necessary to abandon the project. The California law under which this condemnation was instituted provides that no building may be erected on the property being taken while condemnation is proceeding, unless compensation for building damages is waived. The large Petroleum Securities Building was built during the time the condemnation was running, to conform to the new lines of the improvement which will benefit the building considerably. The city has been required to pay only for land in front of the building, with no cost for the making of building alterations.

Activity on this project was dormant for several years pending enactment of laws which assigned to cities a portion of the gas tax collected by the state. With funds available from this source, the project was revived in 1935, the cost of acquisition and improvement being financed entirely from gas tax funds. Work on this project has to date been confined to sections where jogs in alignment occurred. With these jogs eliminated and the street thus made one continuous highway, it is proposed to widen and repave the intervening stretches, securing a street of uniform width, a minimum of 100 feet.

The Figueroa Adjustment

To straighten the alignment of Olympic Boulevard at Figueroa Street, three blocks of adjustment are required, two on one side of Figueroa Street and one on the other. The contract for the work was awarded to a local contractor for $80,185, which is the cost exclusive of the right-of-way. At one point in this work the new location of the Boulevard goes through a four-story apartment building, which had to be sliced off and the façade replaced.

In the new paving a 6-inch concrete base with a 2-inch asphaltic concrete surface is used, retaining such existing pavement as can be salvaged by building it up with a leveling course, where needed, to the cross-section for the new wide roadway. On the southwest corner of Figueroa Street a traffic island is being constructed to channelize the traffic and make a merging of traffic on the old and new street areas easier and safer.

Olympic Boulevard is the new name of old Tenth Street and on the east side of the city it merges with Ninth Street. The use of the older streets which had been laid out by real estate developers in the early days created considerable difficulty, for the continuity of streets was not as important in horse-and-buggy days.

Earlier Work and Work to Be Done

Two years ago a dead end in a high-class development was removed by connecting Tenth Street and Country Club Drive to form the one boulevard, renamed Olympic. Other earlier work also included a change of alignment one-half mile west of the present work to eliminate another dead end and to connect Tenth Street. This work was completed in the fall of 1938.

Two more projects which will aid in the improvement of Olympic Boulevard as soon as funds are available are the reduction of a jog at Vermont Avenue and the elimination of a "bulge" in alignment at Wilton Place. By planning the gradual elimination of the traffic bottlenecks one at a time, the financial strain is reduced and the highway is created as a major unit in the transportation system of the city without too great a readjustment at one time.

New 15-Acre Lake for City Planned

PLANS FOR FURTHER increasing the recreational facilities of Fort Wayne, Ind., in Mayor Baals' program have been announced by the Board of Park Commissioners. As reported in the July-August issue of the *Fort Wayne Municipal Review*, the Commissioners stated that plans for the creation of a 15-acre lake in Franke Park had been drawn by Adolph Jaenicke, Park Superintendent. Mr. Jaenicke stated that fishing, swimming and skating will be provided by the new lake, which will occupy a natural basin, fed by the drainage of rainfall augmented by the pumping of a nearby well during emergencies when the natural water supply runs low.

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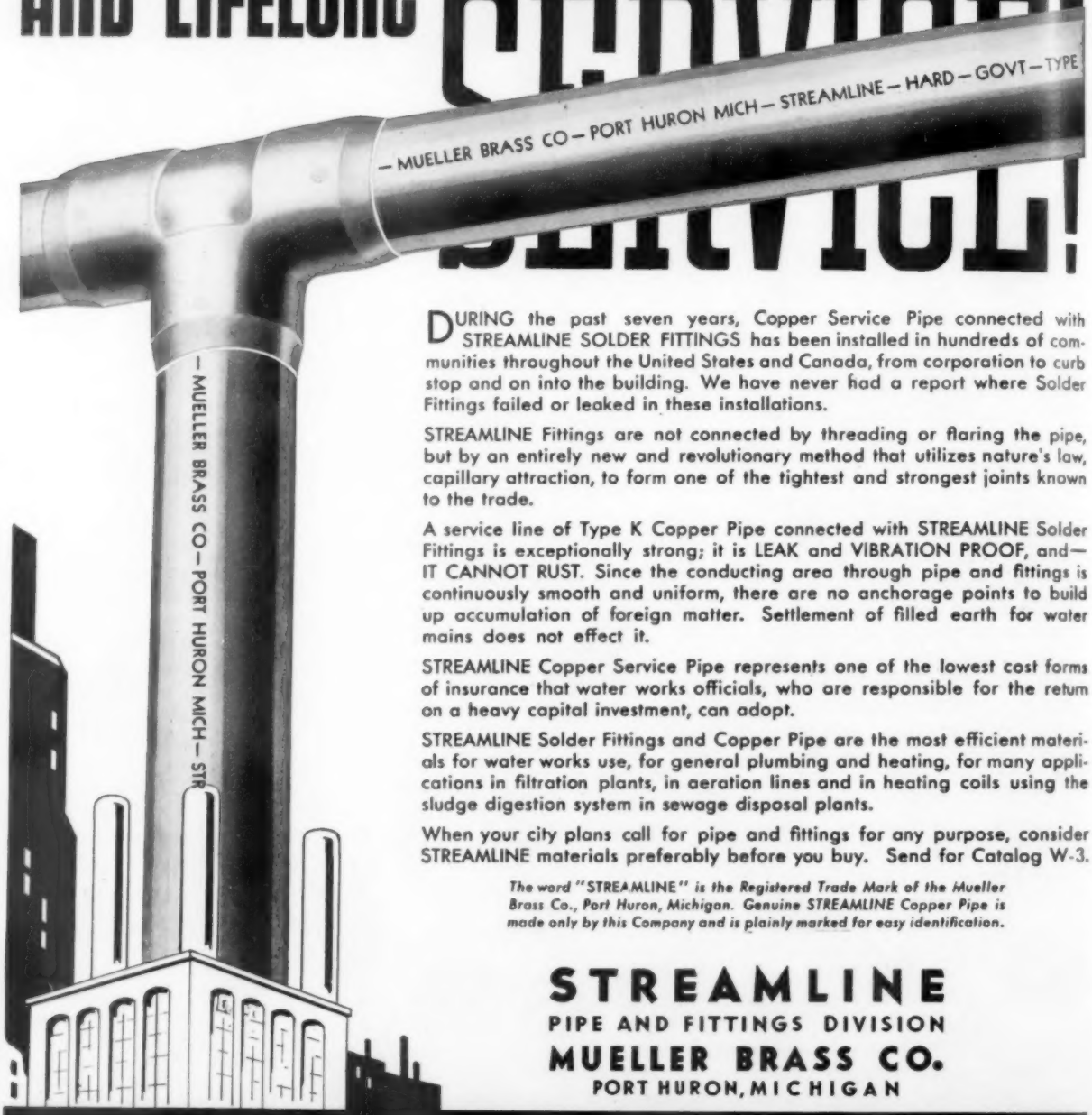

DURING the past seven years, Copper Service Pipe connected with STREAMLINE SOLDER FITTINGS has been installed in hundreds of communities throughout the United States and Canada, from corporation to curb stop and on into the building. We have never had a report where Solder Fittings failed or leaked in these installations.

STREAMLINE Fittings are not connected by threading or flaring the pipe, but by an entirely new and revolutionary method that utilizes nature's law, capillary attraction, to form one of the tightest and strongest joints known to the trade.

A service line of Type K Copper Pipe connected with STREAMLINE Solder Fittings is exceptionally strong; it is LEAK and VIBRATION PROOF, and—IT CANNOT RUST. Since the conducting area through pipe and fittings is continuously smooth and uniform, there are no anchorage points to build up accumulation of foreign matter. Settlement of filled earth for water mains does not effect it.

STREAMLINE Copper Service Pipe represents one of the lowest cost forms of insurance that water works officials, who are responsible for the return on a heavy capital investment, can adopt.

STREAMLINE Solder Fittings and Copper Pipe are the most efficient materials for water works use, for general plumbing and heating, for many applications in filtration plants, in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants.

When your city plans call for pipe and fittings for any purpose, consider STREAMLINE materials preferably before you buy. Send for Catalog W-3.

The word "STREAMLINE" is the Registered Trade Mark of the Mueller Brass Co., Port Huron, Michigan. Genuine STREAMLINE Copper Pipe is made only by this Company and is plainly marked for easy identification.

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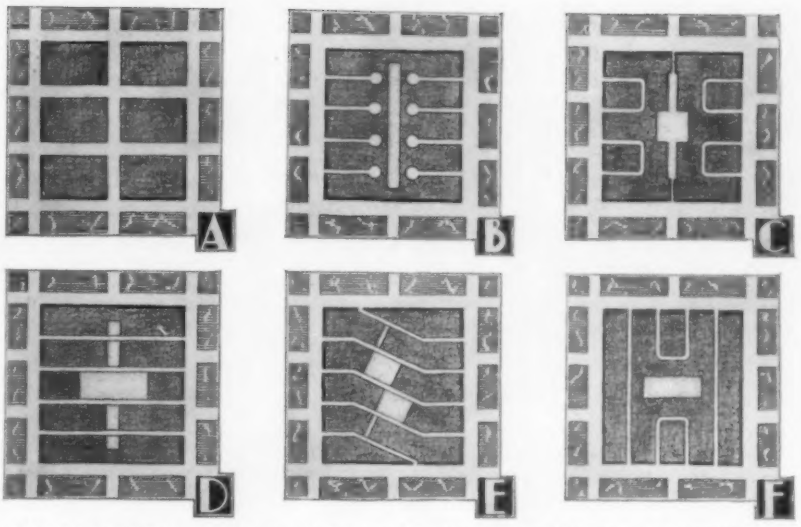
COPPER PIPE AND FITTINGS

The Superblock

Basis for the Site Plan

IN its recent publication, "Planning the Site—Design of Low-Rent Housing Projects," the United States Housing Authority discusses basic accepted principles of site planning for low-rent housing. Primary among these is the superblock, which in its many varieties is the basis for the organization of the site plan. The superblock is defined as "a relatively large area, usually containing one or more common open spaces, and bounded in whole or in part by through traffic streets, but not intersected by such streets." The accompanying diagrams illustrate some of the fundamentals of superblock design. "Cul-de-sac or dead-end streets, branching from a circumferential traffic street, may be used to give internal access; or through streets, so reduced in width or so placed and shaped as to discourage any but local interior traffic, may serve the houses within the block."



DIAGRAMMATIC PLANS ILLUSTRATING SUPERBLOCKS OR TRAFFIC-FREE RESIDENTIAL AREAS IN AN EXISTING CITY PLAN

A. The area to be planned. B. A true superblock, subdivided only by cul-de-sacs. C. Turned lanes, avoiding the use of turn-arounds and saving time in route servicing. D. Lanes running through the area. E. Similar lanes at an angle for esthetic effect or for better relation to the topography. F. Through and turned lanes combined to secure a large central open area

In all cases through or fast traffic in the residential area is limited by providing a wide and well-paved street around the area and by using narrow pavements within it

Directly related to the superblock are a number of corollary principles, including:

(a) *The articulated street pattern.* This is the design and construction of streets and walks to serve particular functions, i. e., through traffic, local traffic, service lanes, pedestrian walks, etc. This results not only in economy of paving and utilities costs, but gives privacy to residential areas and freedom from traffic hazards. Instead of planning all streets for an anticipated, and in most cases unrealizable, future intensity of land use based on the hope of business or industrial expansion, streets should be designed and constructed for the particular use which they can best serve in accordance with a neighborhood and city plan.

(b) *The appropriate planning for use of all open spaces, and arrangement of buildings on the site to give concentration of these spaces.* Some of these spaces will be maintained by the project as common open areas for recreation and group activity; others—and in so far as possible these should be the greater part—by the tenants. In some cases tenant groups and clubs may assist in the maintenance of common spaces. A rough measure of the success of a housing project is the extent to which tenants participate in the maintenance of the public spaces.

The application of these principles will reduce traffic hazards and noise, increase privacy, integrate play areas with dwellings, and protect the project from deteriorating outside influences.

Incineration or Burial—Modern Garbage Disposal

To the Editor of THE AMERICAN CITY:

Our interest in, and our enthusiastic endorsation of Mr. D. P. Tynan's article on garbage disposal in the June issue of THE AMERICAN CITY is easily understood; the success of our company depends to some extent on the truth and good sense of that gentleman's writing.

It is, however, of great importance that every possible support should be given to any effort which aims at improvement in a matter of such importance to the public health. To appreciate this importance, picture to yourself a group of the infantile paralysis cases that have come under your notice and ponder the following statement of a doctor in Ireland:

"For over ten years I have collected data for the cause and treatment of poliomyelitis (infantile paralysis). On careful enquiry, I found that, of such cases treated by me, 75 per cent lived near one of the suburban dumps, at an age (between one and four years) when children are most susceptible to infection by inhalation."

Children, and some adults, are irresistibly attracted by garbage dumps. Not very long ago a child in our city offered meat for sale at the door of a neighbor and, when asked where he got the meat, explained that he found it at the dump, and volunteered the information that he had already sold some to some Indians. If proof be needed that there is ignorance and confusion in high as well as low places, you will be amazed to learn that a highly placed official in this country informed the Council of one of our cities that incinerators came under the heading of luxuries.

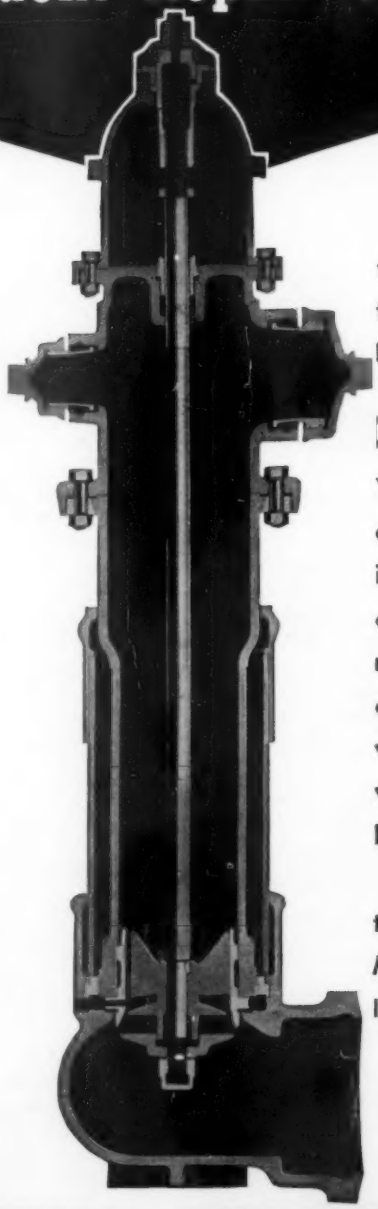
Mr. Frank Evans, the inventor of the Fecenix System of controlled burning, has been studying this problem of garbage disposal for over thirty years and has been endeavoring to bring the advantages of incineration over burial or "controlled tipping," as it is called in England, to the attention of the Ministry of Health, with a good deal of vehemence.

All our experience, both in England and Canada, goes to show that, however effective the tipping system may be in theory, in practice it fails to a degree which suggests that its proper operation is almost an impossibility. The writer visited the controlled tip in the vicinity of Paris, France, a few years ago and was almost nauseated by the odor from it,

(Continued on page 79)

BECAUSE IT UNSCREWS

The Mathews Hydrant Cuts Accident Repair Costs



NO DIGGING

In case of traffic accident, you can change Mathews as you change a tire. The novel sliding protection case saves all the expense of breaking concrete and digging out your hydrant. You simply unscrew the broken barrel, lift it out through the protection case, and insert the new barrel—a single unit containing all working parts.

NO WASTE

Replacement is completed in fifteen minutes. Then, at a trifling cost, the broken barrel is repaired easily and conveniently in the shop, so that a single barrel, like a spare tire on a car, serves your entire hydrant system.

NO LOSS

Your department becomes more efficient when you specify Mathews interchangeable hydrants. They cut down long overtime—let you do much of your repair work indoors during regular hours. You save water leakage, too, for the main valve is *below* its seat, held tight by water pressure.

Safeguard your community's protection. Write for details about Mathews, the hydrant you change like a tire.

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

Manufacturers of Sand Spun Pipe (centrifugally cast in sand molds) and R. D. Wood heavy-duty gate valves for water works

400 CHESTNUT STREET, PHILADELPHIA, PA.

and something of the kind has been our experience in every city where any system of dumping is used.

The city of Bradford in Yorkshire, England, is an exception to this. Bradford has disused quarries to fill and land to level, ideal but exceptional conditions for a controlled tip. The exponents of tipping as opposed to incineration point to Bradford proudly, as the one great vindication of all their claims.

There is a great mass of expert opinion over the signatures of Medical Health Officers, Engineers and Borough Surveyors, who have no commercial interest in the matter and whose opinion can be nothing but scientific, which endorses Mr. Tynan's statements very fully.

We take the risk of an indictment of tedium and quote just two of them. Dr. S. Nichol Galbraith, Medical Officer of Health, Southwest Kent, United Health area, writing to *Municipal Engineering*, says in part:

"The dumping of refuse is a very wasteful and unscientific method of disposing of burnable rubbish. The creation of rubbish dumps is asking for insect attack upon the health of those living in the vicinity of any dump. Rotting dumps give sanctuary to maggots, flies and mosquitoes, crickets, rats, etc. Insect bites and contamination of food are menaces to the public, the extent and character of which are even today imperfectly understood."

Mr. David Edwards, Borough Engineer, Brighton, England, writing in *Construction Record and Municipal Engineering*, May 8, 1935, said:

"Our widened knowledge of bacterial processes has of late years stressed the value—even necessity—of complete sterilization, so that the residual is bacteriologically innocuous. This should be the ultimate goal of all our efforts. When the noxious character of, and potentiality for, microbic infection which is inherent in refuse are fully appreciated, it will be evident that the less manipulation or exposure to which it is subject, the better. Complete incineration is the only system that affords complete germicidal and hygienic disposal of refuse. An up-to-date plant, equipped to deal with refuse with a minimum of delay and handling, should be esteemed a sanitary and social necessity of the first importance. Indeed, the possession of a well-organized system of refuse collection, and an efficient incinerative plant for its hygienic disposal, should be considered as necessary a social amenity as such recognized services as sewage disposal, lighting, or even education."

Lord Hooder told the Health Congress at Southport a few years ago that the 30,000 tons of human remains buried every year was a danger to health; if this be so, what, we should like to ask, of the 5,000,000 tons of putrescible matter being buried annually by municipalities in their misguided efforts at garbage disposal. A point that has struck me very forcibly is that in grappling with this problem municipal authorities are very much too greatly influenced by economy.

Twice within the last few weeks the writer has been told by officials in towns where disposal was simply an effort to burn in open dumps, that if we could show them that our system could be installed and operated *at no great advance on their present cost* they would be interested. In other words, one is asked to show that a thoroughly rotten system can be replaced with a thoroughly efficient one "at no great advance in cost." It is altogether beside the point that so costly are most bad systems that quite often this can be done.

The answer given in each case was to the effect that if a dangerous and offensive system can be replaced with a safe and efficient one, any intelligent municipal officer's interest is assured, and finance a secondary consideration.

Economy has become a fixation in the minds of the ratepayer. "Stop spending money" is his cry to his elected, as if that were the panacea for hard times.

Presumably it is mob-psychology that makes the wrong end of the stick the most attractive. To the average ratepayer a debenture is just a debt; investment in anything but gilt-edged security (so-called) is just a mortgage. Unfortunately, health, hygiene, cleanliness and tidiness are not yet listed among gilt-edged securities.

One of the most progressive cities in Canada and one whose financial situation is well above the average, having an open dump and a costly one at that, applied for government approval for the issue of a debenture of $18,000 for the erection of a modern incinerator, and was refused on the grounds that the city had some roads to build and could not afford an incinerator. Difficult to believe—but only too true.

Commercial concerns are spending millions on such indirect aids to the health of their employees as air-conditioning, bacteriological research and psychiatry,—and those employees live in cities and towns with open garbage dumps, and the largest city in the world, if we except the County of London, resorts to a system of waste disposal which, to say the least of it, is unscientific, if not actually unhealthy and impracticable.

L. C. EVANS,
Feoenix Converter of Canada Limited,
Regina, Saskatchewan.

The article discussed in these two letters appears on pages 100, 101, 111, and 113 in the June, 1939 issue.

To the Editor of THE AMERICAN CITY:

The article, "Modern Garbage Disposal—Incineration or Burial?" in your June issue by Mr. Desmond P. Tynan, gives your readers the impression that it was written for the purpose of glorifying incineration at the expense of open or partially open garbage dumps. The presentation is open to criticism in the rather loose way in which the term "sanitary fill" is used and in its lack of distinction between a true sanitary fill and an open or partially open dump. The same "medicine" that Mr. Tynan uses is applicable to incineration—sometimes garbage is not really incinerated but is, for purposes of economy, only toasted, with resulting nuisance of rats, vermin and objectionable odors at the incinerator ash dump.

To qualify as able to comment on Mr. Tynan's article, we offer our experience as the contractors who developed and for six years have operated the successful sanitary fill where San Francisco garbage and refuse is disposed of under the supervision of San Francisco's engineering and health departments. The editor of *Engineering News-Record* personally visited this fill recently and wrote an account of what he found. (See his paper for July 6, 1939, p. 59.)

Mr. Tynan, who may or may not have visited our San Francisco fill, twice mentions it and then, without any detailed information about it, follows immediately with a horrible example of some unsuccessful, mistermed sanitary fill, that was either an admittedly temporary expedient (Cleveland, Ohio) or was something that happened fifteen years ago. This latter instance (Oakland, Calif.) was, at best, only an open garbage dump with no attempt to cover the edges.

Rats, odors and disease-bearing vermin that lurk in fills seem to be the bugaboos that cause most of Mr Tynan's alarm. The San Francisco sanitary fill, in operation for more than six years, has neither rats nor vermin, nor are there objectionable odors. Neither have any cracks ever opened up in finished portions of the fill, where Mr. Tynan says they are bound to appear to again attract and harbor rats and vermin.

We believe you will agree that your readers should have the plain facts. We know that a sanitary fill properly maintained, *is* sanitary and is free from objectionable features. The degree to which a refuse fill is "sanitary" is measured by the frequency and thoroughness with which the working areas are completely covered with suitable sealing material.

L. P. BRASSY,
Easley & Brassy, San Francisco, Calif.

LINED UP TO SERVE A CITY

These Chapman Valves

Control All Inlets to Primary Sedimentation Tanks In Detroit's New Sewage Treatment Plant

Gallery View looking east showing 18″ Chapman Gate Valves installed on inlet pipes, Primary Sedimentation Tanks, New Sewage Treatment Plant, Detroit, Michigan.

Another View of same gallery looking east.

Rosoff Bros., Brooklyn, N. Y., General Contractors for the Primary Sedimentation Tanks.

One hundred and twelve of these 18″ Chapman Iron Body, Bronze Mounted Gate Valves were used in this modern Sewage Treatment Plant, recently completed for the City of Detroit. Their installation here is a typical example of selection from standard Chapman lines of the *right* valve for the service intended. Wide use of Chapman Valves for all types of service in the sewage and waterworks field is the best evidence of the real merit and dependability inherent in all Chapman products.

THE CHAPMAN VALVE MANUFACTURING COMPANY

INDIAN ORCHARD, MASS.

Water Rates and Service Charges

1939—Part VII

Covering Domestic and Industrial Meter Rates, Discounts and Penalties, Installation Charges, Fire Hydrant Rentals and Fire Sprinkler Costs

Catskill, N. Y.

Present population	5,200
Population served	5,600
Number of active services	1,800
" " meters	700
" " hydrants	189
Miles of water main	40

The meter rates charged for water consumed in the village of Catskill, are as follows:

Less than 100,000 cu. ft.	$ .15	per	100	cu. ft.
100,000 to 200,000 " "	.12	"	"	"
200,000 to 300,000 " "	.10	"	"	"
300,000 to 400,000 " "	.09	"	"	"
400,000 to 500,000 " "	.08	"	"	"
Yearly minimum	18.00			

The meter rates for service outside the limits of the village are 18c per 100 cu. ft., with a yearly minimum of $21.60.

Applications for water service are accepted only from property owners. All taps to the mains are made by the employees of the Board of Water Commissioners at a cost to the consumer of $15, which includes the curb box, corporation and curb cocks.

The charge for the 158 hydrants within the village is $45 each per year, and for the 31 hydrants served outside the village $60 each per year. There is no charge for sprinkler service for private fire protection.

W. K. Hagginbothom,
Village Superintendent, Board of Water Commissioners.

National City, Calif.

Present population	15,000
Population served	21,000
Number of active services	5,115
" " meters	5,403
" " hydrants	223
Miles of water main	130

The following monthly minimum charges based on the size of the meter entitle the consumer to the quantity of water which this charge would purchase at the monthly quantity rates quoted below:

Monthly Minimum Charges

¾" meter	$1.40
¾" "	1.70
1" "	2.25
1¼" "	3.55
2" "	4.80
3" "	8.40
4" "	14.40

Monthly Quantity Rates

From 0 to 1,200 cu. ft.	$ .28	per	100	cu. ft.
Next 800 " "	.18	"	"	"
Over 2,000 " "	.12	"	"	"
(for other than irrigation use)				
Over 2,000 cu. ft.	.06	"	"	"
(irrigation use only)				

All water used in municipal buildings or for any municipal purposes is metered and a charge of 12c per 100 cu. ft. made to the city.

Applicants for new water services are required to deposit $2.50 unless the consumer owns the property, while old consumers of good credit standing need make no deposit. There is no charge for the installation of water services.

The monthly charge for public fire hydrants is $3.00 each. There is no charge for sprinkler heads for private fire protection, since all services are metered.

F. J. Hodges,
Superintendent, Sweetwater District, California Water & Telephone Co.

Van Wert, Ohio

Present population	8,472
Population served	Unknown
Number of active services	2,590
" " meters	2,590
" " hydrants	230
Miles of water main	30

The following schedule of water rates has been in effect since June 30, 1935, for domestic services:

Minimum rate for 660 cu. ft. or less	$2.25			
To and including 6,000 cu. ft.	3.40	per	1,000	
From 6,000 cu. ft. to 12,000 cu. ft.	3.00	"	"	
From 12,000 cu. ft. to 20,000 cu. ft.	2.10	"	"	
All in excess of first 20,000 cu. ft.	1.00	"	"	
Flat rate, one opening per quarter	2.35			
Each additional opening	.60			

The rates for industrial services, which includes all large users of water, are:

First 6,000 cu. ft.	$.20	.40		
12,000 " "	.38	.40		
20,000 " "	.55	.20		
All in excess of first 20,000 cu. ft.	1.00	per	1,000	

All charges for water if not paid become a lien on the property and are collected as provided in Section 3958, General Code of Ohio.

Applications for the use of water must be made at the office of the Water Department, on printed forms, on which the applicant states the purposes for which water is to be used. The form requires that the by-laws and regulations of the Department become part of the contract between the applicant and the Water Works Department.

The Water Department makes taps and installs the services at a cost of $12 for ¾" services and $25 for 1" services. Those larger than 1" are figured at cost for material and labor and charged to the consumer.

There are no hydrant rentals for either public or private fire hydrants, and no charge is made for installations of sprinkler heads for private fire protection.

Sewer rentals are charged on the same bill with the water rates, as follows:

First 2,000 ft. or less	$1.50	per	quarter	
Next 10,000 " " "	.50	"	1,000	
" 10,000 " " "	.40	"	"	
All in excess of first 22,000 ft.	.25	"	"	

C. H. Reid,
Superintendent, Water Works Department.

Lebanon, Pa.

Present population	26,000
Population served	26,000
Number of active services	6,500
" " meters	235
" " hydrants	353
Miles of water main	63

All water-meter rents are due and payable on the first days of February and August, and payments must be made prior to March 1 and September 1 respectively, or 5% will be added and 1% for each additional month thereafter. The water rates are:

First 2,000 gals. or less	$1.00			
Next 5,000 " " "	.20	per	1,000	gals.
" 10,000 " " "	.15	"	"	"
" 15,000 " " "	.12	"	"	"
" 25,000 " " "	.08	"	"	"
" 50,000 " " "	.06	"	"	"
" 500,000 " " "	.05½	"	"	"
" 500,000 " and upwards	.04½	"	"	"

The following minimum charges are made, depending upon the size of the meter:

½" meter	$1.00	per	month
¾" "	1.25	"	"
1" "	1.50	"	"
1¼" "	2.00	"	"
1½" "	2.50	"	"
2" "	4.00	"	"
3" "	8.00	"	"
4" "	12.50	"	"
6" "	25.00	"	"
8" "	40.00	"	"

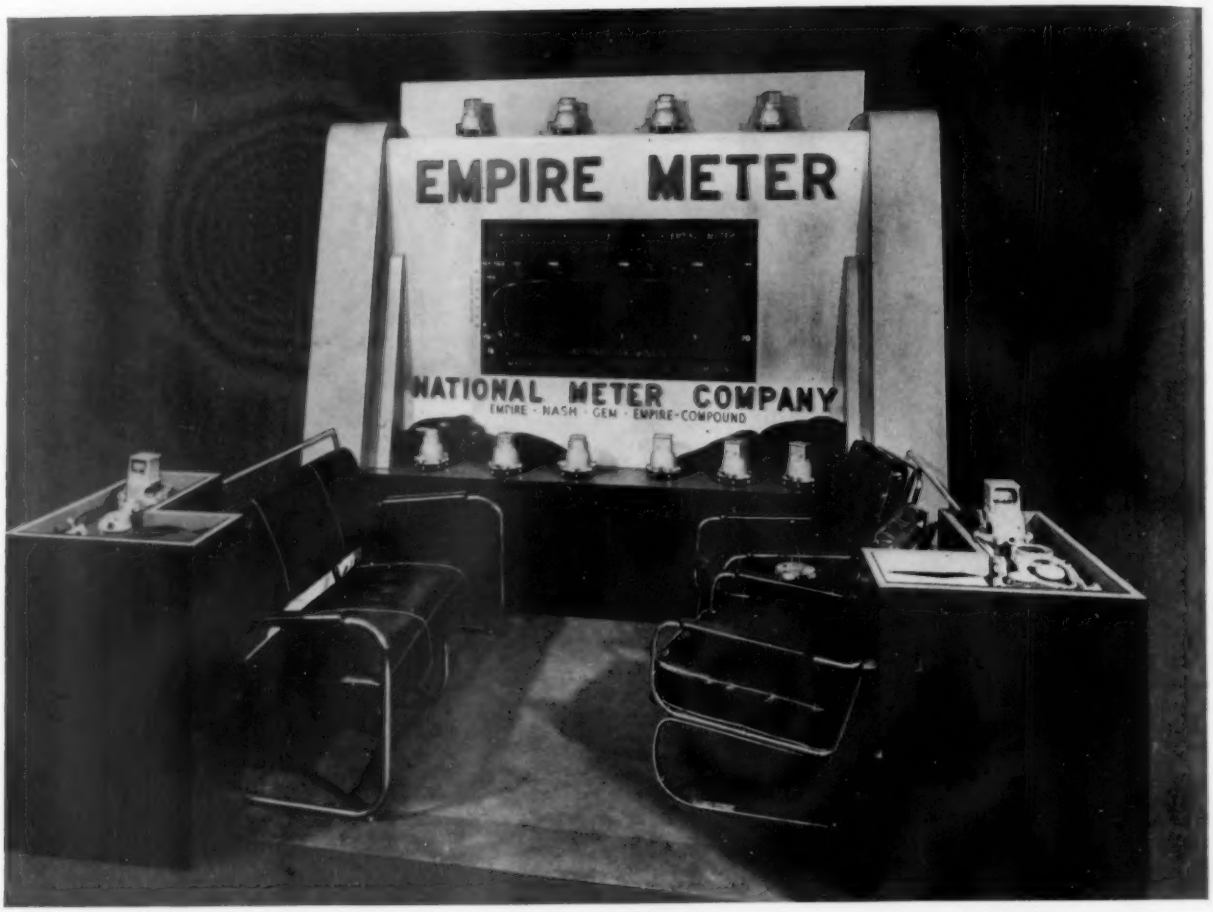
All meters are furnished by the Bureau of Water and installed by the Bureau at the expense of the consumer. The charges for meter settings are as follows:

½"	$10.00
¾"	13.00
1"	17.00
1¼"	25.00
1½"	32.00
2"	50.00
3"	50.00
4"	70.00
6"	120.00
8"	170.00

These charges are based on the fact that the property owner at his expense uncovers the service pipe at the location selected by the Bureau of Water and

A Warm Welcome

AT BOOTH 23



New England

WATER WORKS ASSOCIATION

Convention

National Meter Company

BROCKLYN · BOSTON · CHICAGO · DALLAS · LOS ANGELES · SAN FRANCISCO · SEATTLE

During September we hope you will remember to mention THE AMERICAN CITY.

provides a suitable pit or space for placing the meter.

The charges for resetting meters in locations having standard settings are:

½"	$2.00
¾"	2.00
1"	2.00
1¼"	2.50
1½"	3.00
2"	4.00
3"	6.00
4"	8.00
6"	12.00
8"	16.00

Water is furnished free to all public buildings and charitable institutions.

The Bureau of Water tests meters at the request of the owner or consumer. A deposit is required to cover the estimated cost of the test, including the taking-out and resetting of the meter. The deposit is returned if the meter is found to be registering more than 3% unfavorable to the consumer on a flow equal to ⅛ of the diameter of the service; otherwise the deposit is retained by the Bureau of Water to cover the cost of the test. The charges for removing meters for tests are:

½" meter	$2.00
¾" "	2.50
1" "	3.00
1¼" "	3.50
1½" "	4.00
2" "	6.00
3" "	9.00
4" "	16.00
6" "	24.00
8" "	32.00

After a consumer has made application to the Bureau of Water for service, a private service with its own corporation cock at the city main and an extra-heavy roundway curb stop of the same size as the pipe must be installed, together with an extension curb box with lock screw top placed at the curb or footway. The service pipe is installed either by the Bureau of Water or by a registered plumber who has obtained the necessary permit.

Where a consumer is delinquent in the payment of water meter rents, the City Council may direct the Superintendent of the Bureau of Water to turn off the water and stop the supply after 10 days' notice in writing. The supply is not resumed until all charges are fully paid.

There is no charge for either public or private fire hydrants, nor for connections for sprinkler heads for fire protection.

H. G. Louser,
Superintendent, Bureau of Water.

Fairbury, Nebr.

Present population	6,192
Population served	6,300
Number of active services	1,568
" " meters	1,568
" " hydrants	213
Miles of water main	20

The domestic water rates are:

First 5,000 cu. ft. per month	$.15 per 100 cu. ft
Next 5,000 " " " "	.13 " " " "
Excess " " " "	.10 " " " "

The monthly minimum bill is 50c, and a discount of 10% is allowed for all bills, above the minimum, paid within 10 days of issuance.

An irrigation rate available upon request only for the five full months period from April 15 to September 15 inclusive, on which a discount of 10% for payment within 10 days for all bills above the minimum is allowed, is:

First 1,000 cu. ft. per month	$1.00
Excess " " " "	.09 per 100 cu. ft.

The monthly minimum charge is $1.00.

Application for water service is made by the consumer through his plumber, a payment of $1.50 being required to cover the cost of the connection and corporation cock. The city furnishes the water meters and keeps them in repair.

The Water Department makes no direct hydrant rental charge. There is a mill levy of 0.7 mill to cover hydrants and sanitary sewer maintenance and extension. The money is placed in a sewer fund, and as a result no money is left to care for hydrants. There are no charges for sprinkler heads for private fire protection.

G. E. Bell,
Commissioner, Light and Water Department.

Tooele, Utah

Present population	5,135
Population served	4,981
Number of active services	1,052
" " meters	1,052
" " hydrants	82
Miles of water main	18.33

The metered water rates for Tooele for which the minimum quarterly bill is $3.00, are as follows:

		Per 100 Cu. Ft.
Quarterly minimum of	3,000 cu. ft.	$.10
Next	37,000 " "	.10
"	10,000 " "	.09
"	10,000 " "	.08
All over	60,000 " "	.06

A 10% discount is allowed if the bill is paid on or before the 25th of the month in which the bill is received.

Applicants for water service sign an agreement with the Tooele City Water Works, giving the address and description of the property and stating whether the property is to be occupied by the owner, a tenant or a lessee, and the owner must agree to be responsible for the payment of all bills. The charges made by the Water Works for the installation of water services are:

½" service	$12.50	Meter deposit	$10.00
¾" "	15.00	" "	10.00
1" "	20.00	" "	20.00
1¼" "	23.00	" "	30.00
1½" "	26.00	" "	38.00
2" "	30.00	" "	45.00

A charge of $12 per year per hydrant is made to the city for the installation and maintenance of all fire hydrants. There is no charge for sprinklers on services for private fire protection.

J. D. Gollaher,
City Manager.

Hamtramck, Mich.

Present population	60,000
Population served	66,987
Number of active services	7,280
" " meters	7,250
" " hydrants	550
Miles of water main	2

The water rates in Hamtramck carry a minimum quarterly charge of $1.50, for which 1,900 cu. ft. of water is furnished. The regular consumption rates are:

	Per 1,000 Cu. Ft
From 0 to 5,000 cu. ft.	$.84
" 5,000 to 10,000 " "	.79
" 10,000 to 1,000,000 " "	.75
1,000,000 and upward	.70

If a bill is not paid within 90 days from rendering, the water is shut off without further notice and is not again turned on until the total amount of the bill is paid. The city holds a lien on every premises against which there is an unpaid account for water service.

When a new building is erected, the owner furnishes the Water Department with the size of the line, and a meter is installed free of charge unless it is over 1" in size. The only charge for installation is the tapping into the main line, which varies according to the size of the line required.

A charge of $25 per quarter is made for each hydrant connected to the Water Department's mains. There are no charges for sprinkler heads for private fire protection; however, a compound meter must be installed in each sprinkler system to catch leaks and small flows. The charge for a small service meter is $100 per year, payable quarterly.

Nicholas Prychitko,
Water Inspector, Hamtramck Water Department.

Palo Alto, Calif.

Present population	18,600
Population served	19,500
Number of active services	5,271
" " meters	5,364
" " hydrants	508
Miles of water main	81.45

For all domestic and commercial services there is a monthly service charge of 50c per meter. To this is added the commodity charge for water actually used.

First 5,000 cu. ft.	$.17 per 100 cu. ft
All over 5,000 " "	.15 " " " "

For all domestic and commercial services outside the incorporated limits of the city of Palo Alto the monthly minimum charges based on the size of the meter are as follows:

¾" meter	$1.40
1" "	2.30
1½" "	4.20
2" "	5.60
3" "	12.00
4" "	16.00
6" "	35.00

Each of these minimum monthly charges entitles the consumer to the quantity of water which that minimum monthly charge will purchase at the following monthly quantity rates:

First	500 cu. ft.	$.28 per 100 cu. ft
Next	8,500 " "	.25 " " " "
"	36,000 " "	.22 " " " "
All over	45,000 " "	.19 " " " "

All municipal or district use of water exclusive of fire hydrants, but including public buildings, schools, irrigation of public parks and grounds, is paid for at the regular metered rates by the city of Palo Alto or other communities.

The costs of installing water services and meters within the incorporated limits of Palo Alto are:

Accuracy
Durability
Simplicity

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General Offices: HARRISON, NEW JERSEY
Offices and Representatives in Principal Cities

WORTHINGTON-GAMON

WG9-8

1. Clean the flange.

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3. Cut length of TAPAX needed.

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OUT OF MANHOLE COVERS WITH
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Quick - Easy - Lasting

TAPAX is the surest relief from rattling, banging manhole covers and offers you the simplest solution for noisy covers at a cost of comparatively a few cents an application. TAPAX is a resilient cushioned composition of asbestos and bronze, shipped in convenient reels. It will "stay put" for years. Ask for sample.

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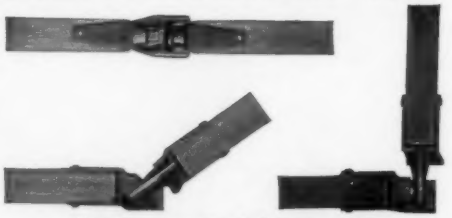

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Invites you to spend
a Winter Vacation at
its leading HOTEL
800 Rooms — Moderate Rates
Excellent Service — Perfect Appointments
The Roosevelt
"Pride of The South"

Installation Cost

1" service	$6.00
1¼" "	33.00
1½" "	39.00
2" "	49.00

Where service is to be laid in paved street, add $10.00.
Where service is to be laid in semi-paved street, add $5.00.

Meter and Meter Box Cost

¾" meter	$0.00
1" "	13.25
1½" "	36.50
2" "	58.50

Outside the incorporated limits the meter with couplings and meter box is furnished by the city without cost to the consumer, and the consumer pays the cost of installing the service connection. For a ¾" connection this cost would average about $12 on an unpaved street.

Hydrant rentals within the city of Palo Alto are $1.50 per month per hydrant. Outside the city each fire hydrant owned and maintained by a District and installed on a 4" or larger main is charged at $1.00 per month, but if the city of Palo Alto owns the fire hydrant on the same size main, the charge is $1.50 per month. The charge is only 50c per month for a hydrant owned and maintained by a District and installed on a main smaller than 4". The charge is $1.00 per month for fire hydrants owned by the city of Palo Alto and installed on mains smaller than 4". A charge of $4.00 is made each time water is drawn from a hydrant for fire drill purposes.

No charge is made for sprinkler heads for fire protection.

L. HAROLD ANDERSON,
Director of Utilities.

Marshall, Mich.

Present population	5,019
Population served	5,300
Number of active services	1,422
" " meters	1,290
" " hydrants	153
Miles of water main	19.05

The rates for water used by consumers in Marshall are as follows:

First	6,000 cu. ft. per year	$.15	per 100 cu. ft.
All up to	50,000 " " "	.11½	" " "
" " "	200,000 " " "	.07½	" " "
All over	200,000 " " "	.06	" " "
Minimum charge per year		$5.00	

An applicant for water service must take out a $22 tapping permit, which pays for the new tap and service from the main to the curb box. The property owner pays all the costs from the curb box to the house.

There is no charge for public fire hydrants for fire service, sewer flushing, drinking fountains and street flushing. No charge is made for services to which sprinkler heads are attached for fire protection, except for such water as may be used and recorded by the water meter.

EARL S. LOCKWOOD,
Superintendent, Water Department.

Hinsdale, Ill.

Present population	7,500
Population served	7,500
Number of active services	2,022
" " meters	2,022
" " hydrants	460
Miles of water main	47

The meters in Hinsdale read in hundreds of cubic feet, while the water rates are billed in 1,000-gal. units, as follows:

First	8,000 gals.	$.46	per 1,000 gals.
Next	12,000 "	.37	" " "
"	20,000 "	.27	" " "
"	760,000 "	.20	" " "
Over	800,000 "	.19	" " "

The minimum charge is $3.30 per quarter net. A discount of 10% is allowed on the bill if paid before the 17th of the month in which the bill is due.

The applicant or consumer pays the cost of material and labor for tapping the main, and has the water service installed by a local plumber. There are no hydrant rentals for either public or private hydrants, nor for sprinkler heads installed for private fire protection.

F. W. MARTIN,
Superintendent of Utilities.

Hope, Ark.

Present population	6,000
Population served	unknown
Number of active services	1,629
" " meters	1,629
" " hydrants	172
Miles of water main	20

The minimum charge per month for water in Hope is $1.00. The regular water rates are:

First	2,000 gals.	$.50	per 1,000 gals.
Next	5,000 "	.40	" " "
"	8,000 "	.35	" " "
"	10,000 "	.30	" " "
"	25,000 "	.20	" " "
All over	50,000 "	.17½	" " "

A deposit of $1.00 is required from all applicants for water service. There are no charges for the installation of water services by the water and Light Department. No hydrant rentals are charged for the 163 public and 9 private hydrants for fire protection, nor for services to which sprinkler heads are attached for fire protection.

NORMAN MOORE,
Clerk, Water and Light Plant.

South Pasadena, Calif.

Present population	18,000
Population served	18,000
Number of active services	3,900
" " meters	3,900
" " hydrants	288
Miles of water main	38

The domestic meter rates in South Pasadena are subject to a minimum charge of $1.00 per month, which permits the use of 500 cu. ft. of water. Water used above this amount is billed at 13c per 100 cu. ft. Water for industrial use is subject to the same monthly minimum charge, and water used in excess of the minimum quantity and up to and including 40,000 cu. ft. is billed at 13c per 100 cu. ft. and beyond that at 10c per 100 cu. ft.

All water for irrigation use is subject to a monthly minimum charge of $1.00 and is billed at 8c per 100 cu. ft. up to and including 40,000 cu. ft., and in excess of that amount 6c per 100 cu. ft. This rate applies only to the irrigation of groves of fruit trees or lands cultivated for the purpose of making a livelihood by raising products for marketing, and does not apply to irrigation for ornamental or lawn purposes. Where water is used for domestic and irrigation purposes through the same meter, an estimate is made by the Water Department of the quantity of water used for domestic purposes, which in no case is less than the regular domestic minimum, and the balance is charged at the regular irrigation rates.

All bills are due and payable when rendered and become delinquent on the last day of the month following that for which the bill is rendered. A special deposit may be required by the Department to insure payment for water used. If delinquent bills are not paid within 5 days after presentation, water service may be discontinued without further notice. When water is ordered shut off for non-payment of a bill, a charge of $1.00 is made for turning on water again when all charges are paid.

A consumer dissatisfied with the registering of a meter may have it tested by the Water Department upon application and deposit of $1.00. If a test of the meter shows it to register over 3% more water than actually passes through it, another meter is substituted for it and the fee deposited is repaid to the person making the application and the water bill for the current period adjusted in such manner as the City Manager deems fair and just. If the meter does not register over 3% fast, the deposit is forfeited and the water bills must be paid as rendered.

Before water is supplied to a premises the owner or user must make special application to the Water Department and pay the following charges:

Up to and including ¾" service	$20.00
1" "	35.00
1½" "	50.00
2" "	70.00

Service enlargements are paid for at the difference in rates shown above. Services larger than 2" are paid for at cost, exclusive of the meter, plus 10%.

All services and water meters installed by the Water Department remain its property and are maintained, repaired and renewed by the city when necessary. If repairs or replacements are caused by negligence on the part of the consumer, any expense caused to the Department is charged against and collected from the consumer.

For each fire hydrant connected to the water mains a charge of $2.00 per month is made. For private fire protection a charge of $1.00 is made for a 2" or smaller pipe; from 2" to and including 4", $2.00 per month; from 4" to and including 6", $4.00 per month. There is no charge for sprinkler heads for private fire protection.

J. C. JAMES,
Superintendent, Water Department.

Corona, Calif.

Present population	7,500
Population served	7,500
Number of active services	2,058
" " meters	1,868
" " hydrants	87
Miles of water main	52

The monthly quantity rates for water used by consumers in Corona are:

For	700 cu. ft. or less	$1.25	
Next	1,300 " "	.16	per 100 cu. ft.
"	3,000 " "	.12	" " "
"	10,000 " "	.10	" " "
Over	15,000 " "	.08	" " "

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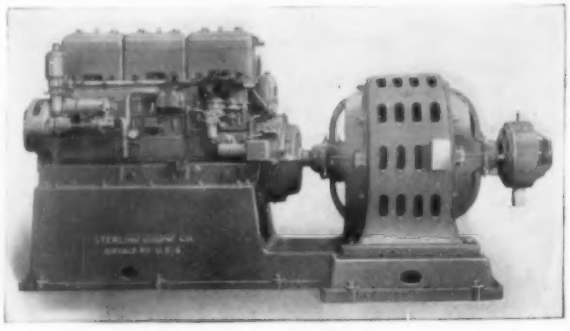

Guntersville Dam, T.V.A., emergency generator set, (Electric Machinery and Manufacturing Company Generator), driven by a Sterling Viking 6-cylinder engine rated 425 Hp. 1200 R.P.M. Engine officially government tested 12 hours, loaded 300 K.V.A. at unity power factor; produced far in excess its rated horsepower without employing the correction factor.

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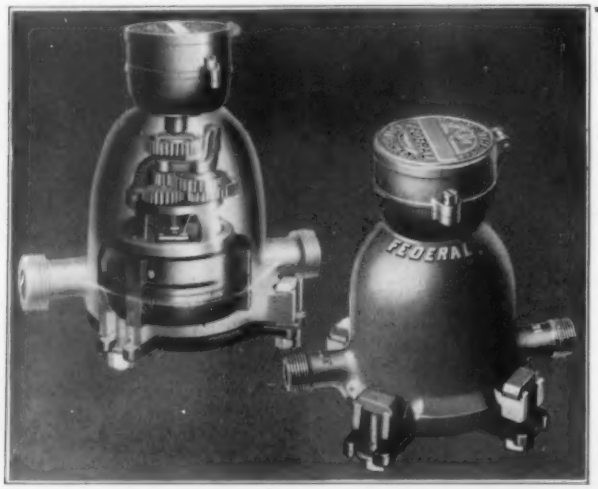
SMITH FEDERAL WATER METERS



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Standard with waterworks men everywhere, Smith Federal Water Meters are constant in their dependable check on water consumption.

Built with watch-like precision yet they will serve for years without any attention.

If you are looking for meters that will serve as ever-watchful guardians of your water revenue, ask the cooperation of Smith engineers—no obligation involved.

In the SMITH line you will find DISC, CURRENT, DISC-COMPOUND, CURRENT COMPOUND METERS and CONTROLLING VALVES, HEAVY DUTY FEDERAL FROST-PROOF and STANDARD FEDERAL FROST-PROOF, SOLID or SPLIT CASE, OPEN or OIL ENCLOSED GEAR TRAINS.

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The minimum monthly charges are based on the size of the meter, as follows:

¾" meter	$1.25
1" "	1.75
1½" "	2.50
2" "	4.50
3" "	6.00
	10.00

Each of these minimum monthly charges entitles the consumer to the quantity of water which that minimum monthly charge will purchase at the monthly quantity rates above. All municipal use of water other than through fire hydrants, including public buildings, schools and irrigation of parks and grounds, is charged for at the regular meter rates.

No charge is made for installation of water services, and there is no charge for services for sprinklers for private fire protection.

A charge of $1.50 is made for each fire hydrant owned by the city installed on a 4" main or larger, and a charge of $2.00 is made for each fire hydrant owned by the Water Company installed on a 4" or larger main. A charge of 50c is made for each fire hydrant owned by the city installed on mains smaller than 4", and a charge of 75c per fire hydrant owned by the company installed on mains smaller than 4".

C. M. Scoville,
Secretary, Corona City Water Co.

Lubbock, Texas

Present population	36,000
Population served	36,000
Number of active services	5,919
" " meters	6,050
" " hydrants	397
Miles of water main	95

The water rates of Lubbock are divided into regular rates and summer irrigation rates, as follows:

Regular Rates

First	3,000 gals. per month	$1.80	
Next	2,000 " " "	.30 per	1,000 gals.
"	5,000 " " "	.25 "	" "
"	10,000 " " "	.20 "	" "
"	40,000 " " "	.18 "	" "
"	100,000 " " "	.16 "	" "
"	140,000 " " "	.15 "	" "
"	100,000 " " "	.12 "	" "
Excess	" " "	.10½ "	" "

Summer Irrigation Rates

First	10,000 gals. per month	$2.80	
Excess	" " "	.15 per	1,000 gals.

All bills are subject to a 10% discount if they are paid within 10 days from the date rendered.

After application is made for service, the city installs the water service, charging $12.50 for a ¾" service, $15 for a 1" service, and for all larger services the cost of time and materials.

A charge of $25 per hydrant per year is made to the city for all public fire hydrants, and there is no charge for sprinkler connections for fire protection.

W. H. Rodgers,
City Manager.

Franklin, N. H.

Present population	6,000
Population served	5,500
Number of active services	1,100
" " meters	1,050
" " hydrants	130
Miles of water main	16.54

The water rates charged in Franklin are a minimum charge of $7.50 per year for 2,000 cu. ft. All water used over 1,000 cu. ft. per quarter is charged for at 25c per 100 cu. ft. All bills for more than $12.50 are allowed a discount of 25% for water used over this amount.

Consumers desiring a supply of water from the city water works are required to fill in and sign a form which may be secured at the Water Department offices. The application states that a water meter is to be attached, and water used through the service will be paid for at meter rates. The installation of the water service from the curb to the property is charged to the owner, while from the main to the curb it is paid for by the Water Department.

No charge is made for supplying water to or maintaining fire hydrants and there is no charge for sprinkler heads installed for private fire protection.

Edward J. Judkins,
Superintendent of Water Works.

River Forest, Ill.

Present population	10,000
Population served	10,000
Number of active services	2,250
" " meters	2,500
" " hydrants	289
Miles of water main	35

The water rates in the village of River Forest are:

First	90,000 gals.	$.33 per	1,000 gals.
Next	360,000 "	.30 "	" "
"	450,000 "	.27 "	" "
Additional		.25 "	" "

Bills not paid within 20 days after date of bill are placed in arrears, the supply of water shut off, and the sum of $2.00 added to the bill for shutting off and turning on the water. Water is not turned on until all arrears and the additional charge are paid.

When an application for water is made, a deposit of $10 is required if the consumer is renting the premises to be metered, but if it is an owner applying for water service, no deposit is required. Charges for the installation of services by the Water Department vary according to the length and size of pipe. All vacant property has had water stubs installed under special assessment.

As all hydrants are village property, there are no rental charges, and there are also no charges for sprinklers for private fire protection.

Arthur J. Pochert,
Superintendent of Water Works.

Toronto, Ohio

Present population	7,500
Population served	7,000
Number of active services	1,618
" " meters	1,650
" " hydrants	120
Miles of water main	30

The minimum bill per quarter in Toronto, Ohio, is $2.00 and the quarterly rates are:

First	20,000 gals. per quar.	$.50 per	1,000 gals.
Next	30,000 " " "	.40 "	" "
"	50,000 " " "	.25 "	" "
"	100,000 " " "	.18 "	" "
"	500,000 " " "	.16 "	" "
All over	700,000 " " "	.14 "	" "

An on-and-off service charge of $2.00 is made where water is shut off on account of delinquency.

Applications for water service must be made by the owner of the property and not by a renter. Water services are installed at the expense of the property owner from the main to the house. The property owner must buy and install the meter and keep it in repair.

There is no charge by the Water Works for public or private fire hydrants, nor for sprinkler head connections for fire protection.

J. B. Thompson,
Superintendent, Toronto Water Works.

Greenwood, S. C.

Present population	12,000
Population served	17,000
Number of active services	1,500
" " meters	1,500
" " hydrants	250
Miles of water main	75

The retail rates for the domestic consumers are:

First 10,000 gals.	$.25 per 1,000 gals.
Balance	.20 " " "

The minimum charge under the retail rate is 50c per month. The wholesale rate for water is 15c per 1,000 gals., with a minimum charge of $35 per month.

When applications for water service are made by renters of property, a deposit is required, but none need be made by property owners. The charges for the installation of water services are $7.50 for ¾" services, $15 for 1" services, and $20 for 2" services.

Both public and private hydrants carry a rental charge of $40 each per year. There is a charge of $3.75 per quarter for each 50 sprinkler heads for private fire protection.

F. W. Chapman,
Superintendent.

De Kalb, Ill.

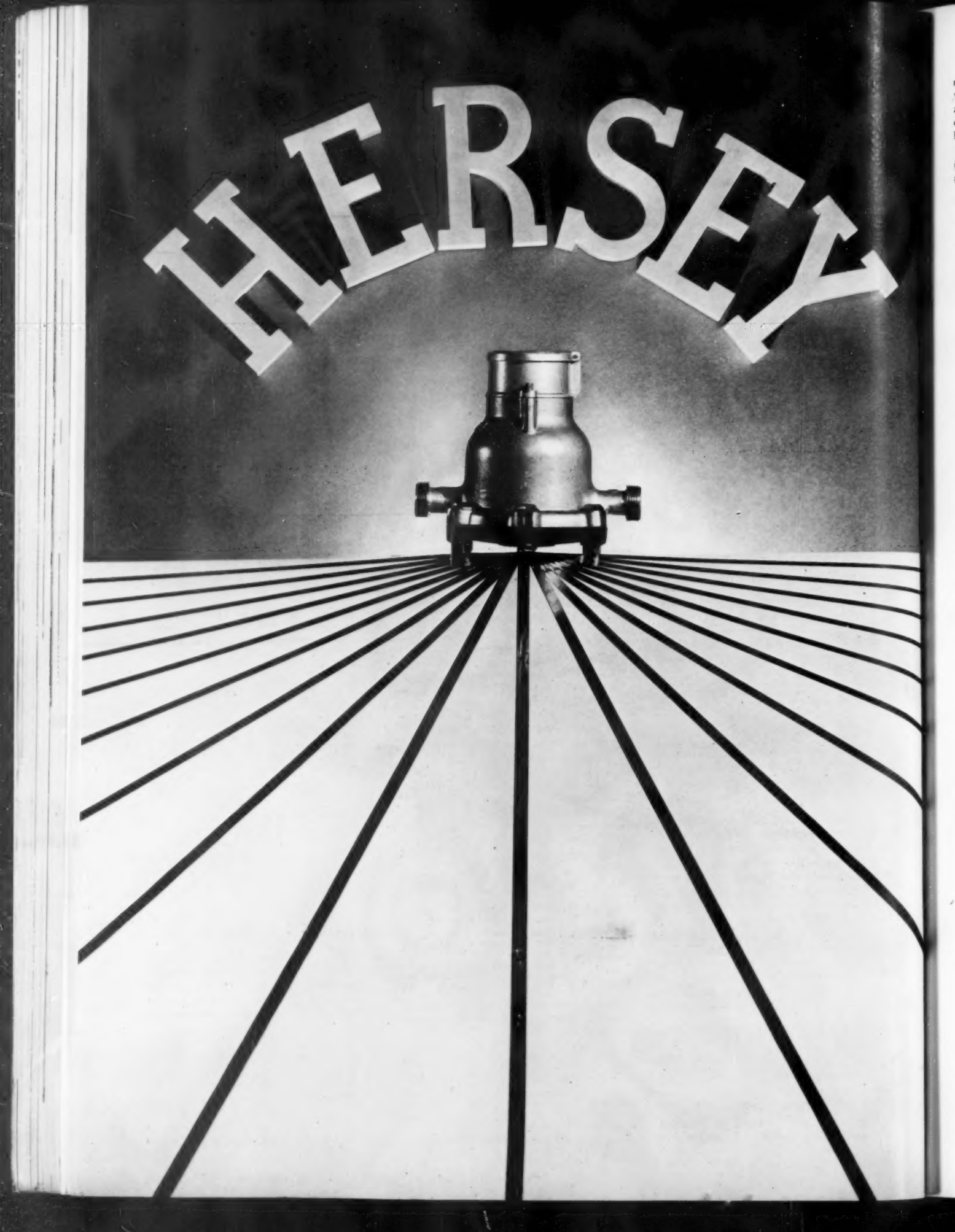
Present population	8,536
Population served	9,500
Number of active services	2,600
" " meters	2,600
" " hydrants	267
Miles of water main	35.0

The water rates in De Kalb are as follows:

		Per 100 Cu. Ft. Gross	When paid by the 15th of the month in which due
First	700 cu. ft.	$.33	$.30
Next	700 " "	.275	.25
"	1,300 " "	.242	.22
"	6,700 " "	.165	.15
"	6,700 " "	.121	.11
All over	16,100 " "	.1025	.0932

The minimum rate is $1.25 per quarter net, and in addition there is a net meter rental of 25c per quarter where the meter is owned by the city. The rates outside the city limits are 30c straight per 100 cu. ft.

The application form is a legal-sized mimeographed sheet containing a diagram on which the applicant is required to show the location of the property, the shut-off and its location with relation to property lines. It also contains a space for the estimated bill of materials and a space for the labor costs, all of which


HERSEY

must be paid by the applicant before water is turned on. The charge is $25 for a ¾" service, and for others the actual cost as shown by the bill of materials and labor costs on the application blank.

There is no charge for public or private fire hydrants, nor for sprinkler heads for fire protection.

F. E. PETERSON,
Commissioner of Public Works.

Sewickley, Pa.

Present population	6,000
Population served	6,000
Number of active services	1,500
" " meters	1,500
" " hydrants	200
Miles of water main	35

The water rates in Sewickley are 35c per 1,000 gals. for the first 50,000 gals., 25c per 1,000 for the next 50,000 gals., and 20c per 1,000 gals. for all water used in excess of 100,000 gals.

The Sewickley Water Co. installs the service free of charge to the curb, and the consumer must install it from that point to the house.

There is a charge of $25 each per year for all public and private fire hydrants attached to the water company's mains. There are no charges made for services to which sprinkler heads are attached for fire protection.

J. S. BESTERMAN,
Superintendent of Water Department.

Oskaloosa, Iowa

Present population	10,000
Population served	8,000
Number of active services	2,720
" " meters	2,700
" " hydrants	200
Miles of water main	38

A uniform charge of 50c per 1,000 gals. is made for all water used by domestic consumers in Oskaloosa. There is a 10% discount for all bills paid within 10 days of date.

No special form of application is used for water service, but a bonded plumber must install the service in the street. The Water Department makes a charge of $3.25 for tapping the main for the service, and this includes the cost of the corporation cock.

There is a charge of $40 per hydrant per year for public fire hydrants. All services to which sprinkler heads are attached for fire protection must pay 5c for each head per year.

VICTOR M. HOVEY,
Superintendent, Water Works.

Rochester, N. H.

Present population	10,200
Population served	8,000
Number of active services	2,309
" " meters	2,182
" " hydrants	275
Miles of water main	46

The consumer may provide a meter of a pattern approved by the Water Board, in which case he must keep it in repair at his own expense. The Board, however, installs meters and sells or rents them. Whenever a meter is installed, the minimum annual rate is not less than $7.00. Property owners renting meters from the Water Department are charged the following annual rentals:

⅝" meter	$1.50
¾" "	2.50
1" "	3.50
1¼" "	4.50
1½" "	6.00
2" "	12.00
3" "	18.00
4" "	25.00
6" "	60.00

The following rates are charged for water measured by meters:

Minimum yearly rate for 35,000 gals. or less	$7.00	per year
Average from 95 to 1,499 gals. per day for the year.	.20	per 1,000 gals.
Average from 1,500 to 2,999 gals. per day for the year.	.17½	" " "
Average from 3,000 to 4,999 gals. per day for the year..	.15	" " "
Average from 5,000 to 9,999 gals. per day for the year.	.10	" " "
Average from 10,000 to 19,999 gals. per day for the year..	.07½	" " "
Average from 20,000 to 49,999 gals. per day for the year..	.05	" " "
Average of 50,000 gals. or more per day for the year.	.03	" " "

All water bills for consumers using less than 100,000 gals. per year are payable semi-annually on the 1st day of January and July. Users of 100,000 gals. or more per year must pay bills quarterly on the 1st of January, April, July and October. In case of non-payment within 30 days, the water is shut off and not turned on again until the rates have been paid and an additional sum of $1.00 for turning on the service.

Applications for the use of water are made on a special form provided by the Water Department, on which the various uses to which the water is to be applied must be fully designated. The city lays all water mains and installs service pipes, gates and stop-cocks, from the street main through the cellar wall, at the expense of the owner, including pipe, fittings and labor from the curb line in the street to the meter inside the building foundation.

No rentals are charged for fire hydrants nor for private fire services to which sprinkler heads are attached.

GEORGE D. DAME,
Superintendent, Rochester Water Works.

East Moline, Ill.

Present population	13,000
Population served	11,000
Number of active services	2,700
" " meters	2,657
" " hydrants	201
Miles of water main	21.25

The first 1,200 cu. ft. of water or less is considered a minimum consumption and is charged for at the rate of $3.00 gross, on which is allowed a 75c discount, or $2.25 net. For more than 1,200 cu. ft. of water consumed, the discount is figured on a 10% basis. The rates for water above 1,200 cu. ft. are:

1,200 to 4,000 cu. ft.	$ .21	per 100 cu. ft.
Next 4,000 " "	.17	" " "
" 12,000 " "	.13	" " "
Excess " "	.10	" " "

All meter bills are due and payable on or before the 15th of each January, April, July and October. The city water supply is shut off on all unpaid accounts 30 days after the end of the quarter.

All services must be installed by a plumber licensed by the city and must be lead and not less than ⅝" size.

The city of East Moline does not collect hydrant rentals. There is a charge of 5c per head for sprinkler fire protection.

ARNOLD NEIHAUS,
City Clerk and Superintendent of Water Works.

Paterson, N. J., and Other Cities

Present population	Unknown
Population served	363,831
Number of active services	37,291
" " meters	37,053
" " hydrants	2,921
Miles of water main	327.758

The Passaic Valley Water Commission furnishes water to the cities of Paterson, Passaic and Clifton, and Prospect Park Borough, N. J., retailing water in these municipalities and selling water wholesale to several water companies and municipalities. These statistics apply to the whole system. The Commission operates the water-works system formerly owned by the Passaic Consolidated Water Co., now the property of the three cities, and follows the rules and regulations of the Public Utilities Commission of New Jersey. The retail water rates are:

		Per 1,000 Cu. Ft.
First	10,000 cu. ft. per quarter	$1.15
Next	90,000 " " "	1.04
"	900,000 " " "	.80
"	1,000,000 " " "	.55
"	1,000,000 " " "	.50
"	1,000,000 " " "	.45
"	6,000,000 " " "	.40
All over	10,000,000 " " "	.30

By resolution, a temporary surcharge of 15% is applied on the gross amount of the bill with the exception of the wholesale rate. The wholesale rate for water is $78 per million gallons.

A fixed service charge on direct retail sales is made, based on the size of the meter, as follows:

⅝" meter	$1.80	per quarter
¾" "	2.85	" "
1" "	6.30	" "
1½" "	15.60	" "
2" "	20.70	" "
3" "	51.75	" "
4" "	69.00	" "
6" "	138.00	" "
8" "	219.00	" "

All new services from ¾" to 2" in size are copper pipe, installed at the expense of the Commission from the main to the curb, and at the consumer's expense from the curb to the meter on an actual cost basis. Services over 2" are of cast iron pipe and installed under the same arrangement.

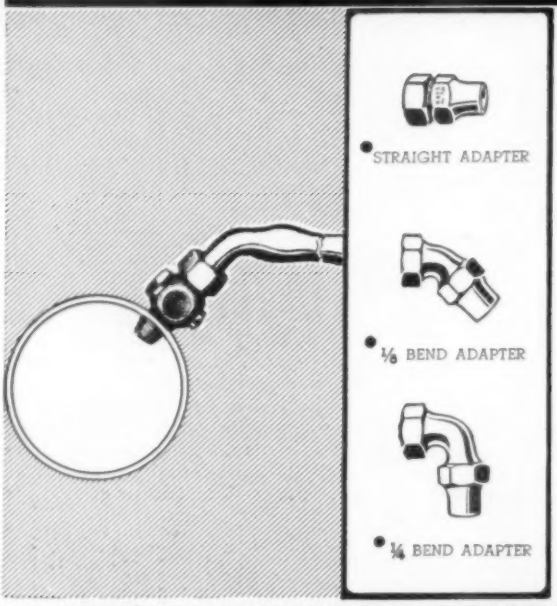
The fire hydrants are owned by the Commission, and the cities are charged at the rate of $10 per year per hydrant, together with an inch-foot charge of $0.0084 on mains in use within the respective communities.

Fire lines are not generally metered, and carry a service charge depending upon the size of the connection as follows:

2" connection	$10.35	per quarter
4" "	34.50	" "
6" "	69.00	" "
8" "	109.50	" "

RICHARD E. BONYUN,
General Superintendent, Passaic Valley Water Commission.

From LEAD to COPPER



Typical of the ease with which you can convert to Hays Copper Services is the Lead to Copper change-over at the left. Here, Hays adapters convert from W. W. S., Increased I. P. or Listed I. P. Thread on the corporation and curb-stop to Double Seal or Radius Seal copper pipe connections.

Whatever service method you now use, you will find that Hays has made it easy and economical to replace with permanent copper services. Hundreds of communities are making original installations and replacements by the Hays Copper Service Method with a very minimum expenditure for new equipment and fittings. Outline your requirements and Hays will show you how to save time and money and make your Main to Curb Service outlast the main.

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Quick Chemical Mixing
Coagulant Mixing
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IN SEWAGE PLANTS

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A type and capacity to fit every existing or contemplated plant.

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Eliminates necessity of painting below overflow.

The cathodic method of eliminating and preventing rust in STEEL WATER TANKS. **Cleans old tanks. Keeps new tanks clean.**

Used by many cities and manufacturers. Write for list.

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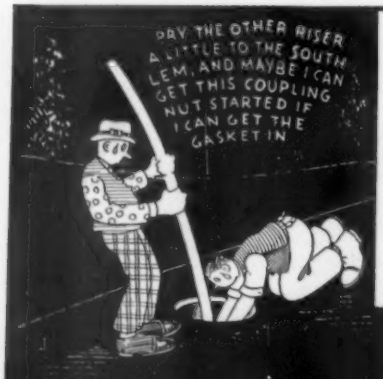

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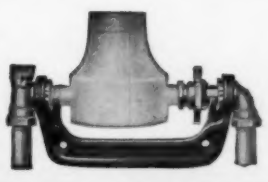
Ford Yokes insure quick, one-man meter changes. Riser pipes are held permanently connected and in line. Meters are set or removed by turning the handwheel of the Expansion Connection, which is removed with the meter. Ford Yokes have been on the market for over 28 years and hundreds of thousands are in service. Write for catalog.



FORD METER BOX CO.
WABASH, INDIANA

Forward Steps

Reported by Municipal Officials, Chamber of Commerce Executives, and Others

A Distinctive Park Shelterhouse

TOPEKA, KANS.—The shelterhouse at Gage Park, Topeka, was built as a CWA project under the direction and supervision of the Commissioner of Parks and Public Property, in 1934. The cost to the city for the entire structure, with inside furnishings, was slightly over $4,000.

The building is 119 feet long and 59 feet wide and is of native stone with asbestos shingle roof and cement floors. Steel girders and tall timbers were used in the roof construction. The unusual dimensions of the building were caused by the fact it had to be built inside some old elm trees and to make it of any other size would have meant the destruction of one or more trees. It was thought that the people would enjoy a picnic building of this type, different from the usual open shelterhouses in public parks.

The building has screened doors and windows, and contains 32 round tables, each seating 10 people. The large fireplace in the north end of the building gives comfort on chilly days in early spring and late fall. There are two ovens flanking the fireplace, where people can cook their meals, and wood is furnished for this. Serving tables are provided, and garbage pails and waste-paper baskets. Small chairs and tables are furnished for young children who accompany their parents, and high-chairs are provided for babies.

Strict rules and regulations govern the use of the building, inaugurated by the Commissioner, who believed the people would enjoy a supervised place kept clean and uniformly in order. Supervisors are in the building from the time it opens in the morning until closing time at night, and reservations may be made through them by the different organizations or persons who wish to use the shelterhouse. The supervisors keep the place spotlessly clean at all times. Four signs read:

This shelterhouse is built for your convenience and pleasure. Please help

This Picnic Room Brings Daily Enjoyment to Many People

The Well-Built Shelterhouse in Gage Park, Topeka

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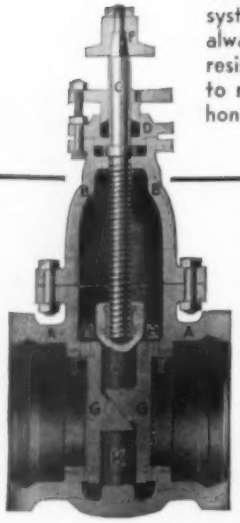
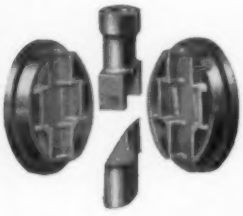


DOUBLE GATE VALVES—double disc, wedge closing, in 22 sizes. Steel, iron, and bronze mounted, 4" to 78"; bronze, 3/8" to 12"; extra heavy bronze, 1/2" to 2".



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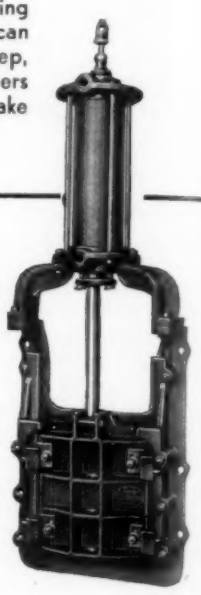

MUD VALVES—with bronze stems, seats and gate rings. Made with extension stem and wheel or in floor stand types. Sizes 4" to 24". Either rising or non-rising stem style.

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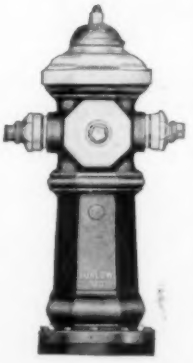

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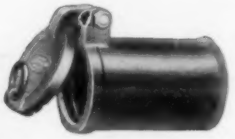

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us keep it clean and in good order. Children must not romp or play in the shelterhouse. Sitting or climbing on tables prohibited.

By enforcing obedience to these rules, and employing supervisors to keep order, the tables have been maintained in as good condition as on the day they were placed in the building.

The anticipations on which this project was planned have been fully realized. Comments have come from people all over Kansas and adjoining states who have used this shelterhouse, and there is a big demand for reservations every day for picnics, reunions, and other gatherings.

HARRY C. SNYDER,
Commissioner of Parks and Public Property.

Peekskill Joins the Flower-Bowl Cities

PEEKSKILL, N. Y.—Tourists following the Albany Post Road, or U. S. 9, which enters New York City on its famous Broadway, have an opportunity to see ordinarily prosaic business streets lined with bowls of flowers and vines if they take a few extra minutes —but no extra miles—to follow an alternative U. S. 9 route through the heart of Peekskill, N. Y., some 40 miles north of Times Square. Those traveling one of the major east-west transcontinental routes—U. S. 6—will pass several of these "hanging gardens" immediately alongside the main highway when they reach Peekskill.

The Peekskill flower-bowl project began to take form more than a year ago. Fifty-six bowls, costing $12 each, were bought by private subscription. Every organization and individual in the community was invited to buy all or part of a bowl and, since the decorations were to be in the business district only, merchants were especially solicited. A Civic Improvement League was formed to back this and later projects, every donor automatically becoming a member. George Levinton, advertising manager of *The Evening Star,* is President of the League.

In June, 1938, the Village Board of Trustees, headed by Village President Myle J. Holley, agreed to take over and maintain the bowls. By mid-December all bowls had been erected and filled with evergreens for the Christmas season. The evergreens remained until early spring, and shortly before Memorial Day summer plants were placed.

The total maintenance cost was estimated at $218 a year. Had not a local florist offered free use of his greenhouse in return for purchase of seeds, the expense would have been $300 to $380, it was believed, because of the cost of buying plants.

Services of a man for three to five hours a day in the early morning, were estimated at $12 a week for 16 weeks, or $192. Cost of top-soil was set at $12 for the first year and $3 or less for every succeeding year, since little need was seen for new top-soil from year to year. Two hundred pounds of evergreens should cost $8, it was anticipated.

A Miniature Garden on a Peekskill Street

The bowls are about 30 inches in diameter and 8 inches deep. They are placed about 9 feet from the ground, clamped to street-lighting standards.

Peekskill cannot lay claim to being the first to place miniature gardens along its streets. This distinction is believed to belong to Minneapolis, which started in 1911 with 500 flower-baskets and at one time had as many as 1,000. It had become known as the "City of Hanging Gardens."

Allentown, Pa., first installed flower-bowls in 1918, and the number reached 401. The city spent $3,091 to maintain the bowls in 1937. Bloomsburg, Pa., erected 58 bowls in 1926; maintenance cost $398 in 1937. Canajoharie, N. Y., put up 16 flower-boxes in 1921. Rye, N. Y., hung 16 baskets last year. White Plains, N. Y., last year made an experimental installation of four bowls.

In other states, and even in Europe, there are flower-bowls and baskets along village and city streets. This type of decoration had, in fact, been seen in Europe long before its appearance in the United States. There are flower-bowls in England, Scotland, Hungary, Belgium and Switzerland.

A hamlet in Maine is also becoming known as a flower-basket center. It is Camden, on Penobscot Bay, some six miles north of Rockland. These "hanging gardens" are particularly noted because they were provided by Edward Bok, who brought the flower-basket idea from Leamington, England. Local workers wove the containers; Mrs. W. J. Curtis, of New York and Camden, donated zinc linings.

AUBREY M. THRELKELD.

Rehabilitation of a California Beach Resort

VENICE, CALIF.—Fifteen miles from the center of Los Angeles, the city of Venice, once a well-known Pacific coast resort, has been gradually deteriorating. Its beaches are washing away; its business area is dwindling. Unless something is done, and done quickly, Venice will be little more than a traffic obstacle.

However, under plans initiated by a vigorous civic leadership, and now being pushed by the Chamber of Commerce and a committee comprising civic officials, business and professional leaders, and civil engineers, the first steps have been taken for the renaissance of the city—a renaissance which is planned to give the city permanence.

Venice was built originally by order of the late Abbot Kinney, a retired capitalist, as a reproduction of the Italian Venice, with Italian architecture, canals, gondolas and singing gondoliers imported especially for the purpose. It was for a time a great financial success.

But, with the advent of the automobile, the city's streets, which had been built for horse and buggy, proved too narrow. Widening was expensive, because the buildings—following the example of the European Venice—were close to the streets. Then, and still today, the main north-and-south artery is a 20-foot alley that twists between buildings. Ironically enough, it is named the "Speedway," although traffic moving through it can go only at a snail's pace, and congestion is terrific.

This traffic situation has undoubtedly been an important factor in the decay of Venice. Another factor has been aggressive real estate competition of other beach communities offering good roads, privacy and modern architecture. Also, Venice has been, ever since it

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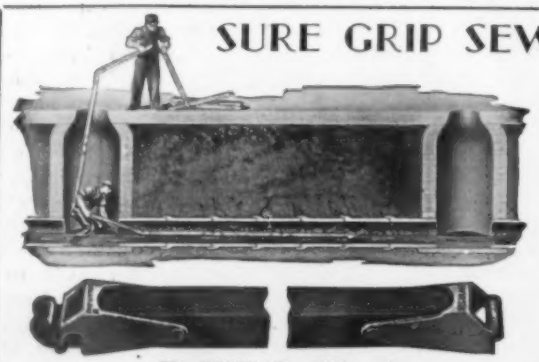

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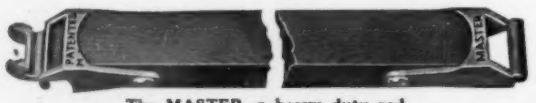

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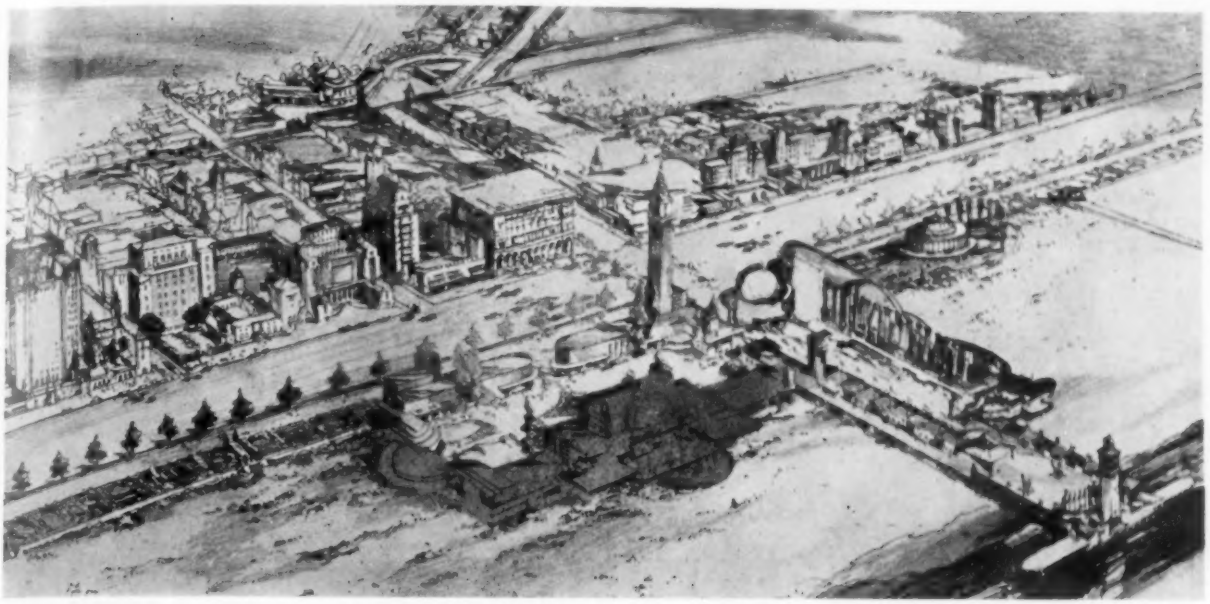

Plan for Rehabilitating the City of Venice, Calif.

was founded, a "company town" controlled by the Abbot Kinney Company. Even when the city was annexed by Los Angeles, this control was not broken. Annexation served only to lower water rates and bring about the filling of the publicized canals, dug with such expense. The final blow to the resort was the discovery of oil there. Drilling started in 1929, and ugly derricks were reared in residence sections, leaving substantial property holders no choice but to sell and migrate. Then the oil boom collapsed. Property values went down still further with the depression. The final disaster came when the beach began to wear away with the erection of a breakwater to the north. Last year it was estimated that 60 per cent of the population was receiving relief.

But the community still occupies its strategic position as the most accessible of Los Angeles seaside resorts. The metropolitan population is available if the city can overcome its artificial handicaps. Approximately one million people travel to suburban Los Angeles beaches every week-end during the summer months, of whom 900,000 make the trip by car.

With this in mind, plans for rehabilitation have gone forward. The erosion of the beach can be prevented, as it wast at Brighton Beach in England, and along the eastern coast of the United States at Coney Island and Jones Beach, through the erection of groins (or jetties) and sand fills. Fortunately, the Federal Government is undertaking the erection of a sanitation plant not distant, which requires the moving of yards of sand dunes. Experiments by the Los Angeles City Engineering Department show that this sand may be pumped between the groins at but small cost.

The projected plan for the city is shown in the accompanying illustration. Private beaches will come under municipal and county ownership. The beach will be widened, and a section of it will be used for a wide traffic artery to take the place of the present "Speedway." The practicability of this scheme has been proved by a section of the Roosevelt Highway—the great coast artery to the north—which is built upon what was once the mean high tide line. Parking islands will be established at various points along the beach artery, depressed below the street level so that they will not detract from the seascape view. There will be pedestrian underpasses at regular intervals, and a 20-foot sidewalk on the land side of the highway, with a 30-foot concrete esplanade between highway and beach. A program of architectural beautification has been projected, and the development of gardens, picnic grounds, athletic and recreational areas has been conceived by the Playground Department.

California's state government has looked with favor upon the proposal, particularly since the greater portion of the beach front is already under public ownership—out of the 8,000 feet of beach frontage involved, only 1,014 feet are privately owned. Los Angeles City and County authorities are eager to rectify the civic liability of Venice as it now stands. In order to prevent financial strain upon the city, county, state and Federal governments, the costs of the program have been distributed over a period of years. The California State Highway Commission has recently approved, officially, the routing of the beach highway along the course projected, and has agreed to match Federal funds already set up. The remaining finances, it is planned, will be derived from the county and the Los Angeles City Department of Playgrounds and Recreation.

GARDNER W. GREGG,
Beach Conservation Federation,
Los Angeles.

"Easy on the Horn"

ST. CLOUD, MINN. — Disturbed by what amounted to a community mania for automobile horn-blowing, the Chamber of Commerce at St. Cloud determined to end the nuisance. Small stickers, 1½ x 3½ inches, were printed, bearing the words, "Easy on the Horn, Please." Mailings of stickers were sent to every member of the Chamber of Commerce, Junior Chamber of Commerce, Lions, Kiwanis and Rotary Clubs, and to certain employee groups, with the request that they be pasted in the rear window of each member's automobile. The Police Department issued a courteous but emphatic statement about the nuisance element of excess noise. These two sets materially reduced horn-blowing, and the stickers have remained in hundreds of cars for months to continue the good work.

E. L. STOCKINGER,
Executive Secretary, Chamber of Commerce, St. Cloud, Minn.

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"During that time, we have been well pleased with your products, both from the standpoint of service and the condition of the cylinders on arrival. We have never received any dirty cylinders of chlorine or cylinders with sticky control valves.

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Paducah's experience with Mathieson waterworks-sanitation products is typical of that of many cities throughout the length and breadth of the United States.

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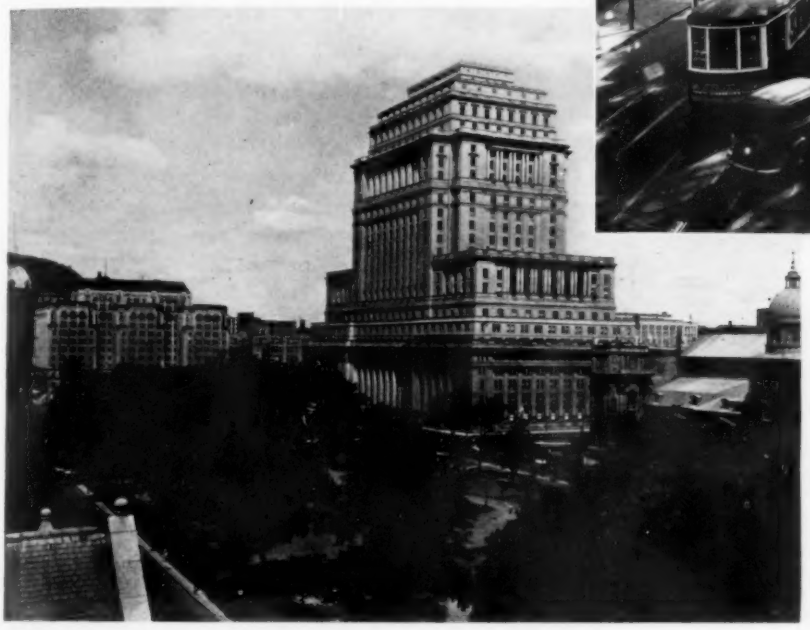

AT RIGHT, ST. CATHERINE STREET, AND BELOW, THE SUN LIFE BUILDING, MONTREAL

These two illustrations and that reproduced on the front cover of this issue are from photographs supplied by the Montreal Industrial and Economic Bureau through the courtesy of the Canadian National Railways and the Canadian Pacific Railway Co.

A BUREAU which, as now set up, is believed to be a unique combination of industrial commission and municipal research agency is the Montreal Industrial and Economic Bureau. Organized in 1937, for the primary purpose of attracting new industries to the Canadian metropolis and of servicing those already established, the Bureau's activities have recently been enlarged to embrace not only general economic research but also municipal surveys and housing research and, when requested, departmental and personnel surveys.

One of the factors which prompted enlarging the Bureau's sphere of responsibility was the abolition last March, through a legal technicality, of the Department of Planning and Research of the Montreal Metropolitan Commission. This Department, during the course of its activity, had become well known to municipal executives, planning, housing and government officials as an important source of governmental data concerning Metropolitan Montreal and other Canadian municipalities. As part of its work, it had built up one of the most complete research libraries on public administration and general statistics to be found in the Dominion. All this documentation has been subsequently transferred to the Industrial and Economic Bureau, and most of the work previously undertaken by the Department of Planning and Research will be continued under the new set-up.

In addition, George S. Mooney, formerly Associate Director of the Department of Planning and Research, was appointed to the Industrial Bureau. He will act as Joint Director and Industrial Commissioner along with Valmore Gratton, associated with the Bureau since its inception.

Although a creation of the municipal authority, the Bureau owes its inception, in large measure, to many years of agitation on the part of the Board of Trade, Chambre de Commerce, Canadian Manufacturing Association and other public bodies. While the intention was to create a body independent of City Hall politics, the Bureau, as finally established, became a department of the muncipal government and, so far, has been financed wholly from civic funds. Its annual budget approximates $25,000.

A movement is now under way, with both public and private bodies approving, to have an independent Board of Directors for the Bureau and to have it financed jointly with private and public funds, business interests contributing equally with the city authorities towards a $50,000 budget.

During recent months the major efforts of the Bureau have been directed towards servicing the flood of industrial capital seeking a haven from Europe. The Bureau has found time, however, to carry out several important research studies in other fields of municipal activity. A major study of the administration of the Port of Montreal is now nearly completed.

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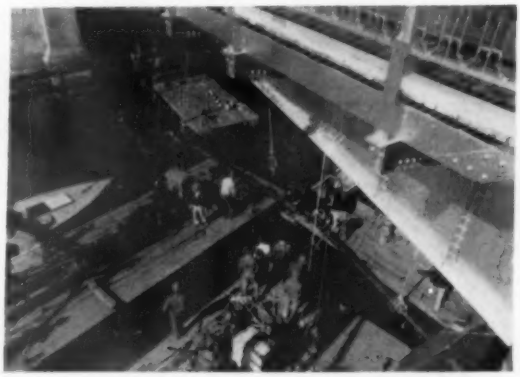

Photo shows 8" Molox Ball & Socket Pipe being joined together prior to lowering into 23 feet of water in ship channel under "Bridge of Lions" across Matanzas River, St. Augustine, Fla., as a water supply main operating at 50 lbs. pressure. Molox Ball & Socket Pipe was selected because of its exceptional physical strength properties, adaptability to submarine installation, and extreme joint flexibility which allows for any normal movement of pipe caused by tide, passing boats, etc. Write for literature.

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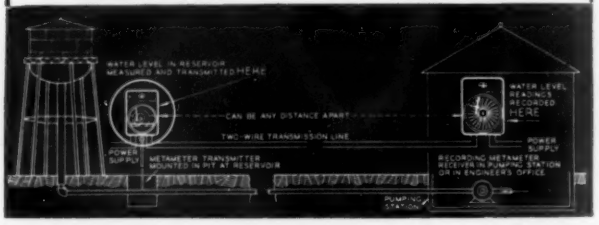
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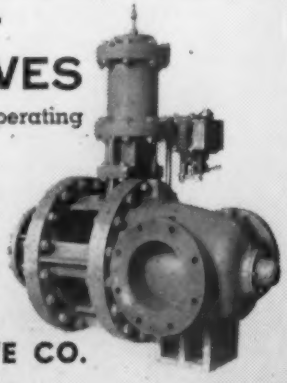

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Improving Municipal Administration

Current Items from the Public Administration Clearing House

Study Shows How Cities May Reduce Fire Insurance Costs

THREE STEPS for cities to follow in securing fire insurance rate reductions were described in a study issued August 21 by the International City Managers' Association. The municipalities were advised to obtain better classification of their fire defenses according to the 10-class grading of the National Board of Fire Underwriters; to encourage individual property owners to make necessary improvements; and to reduce fire losses on a state-wide basis.

The 10-class system of the underwriters grades cities according to quality of fire defenses, those with the best defenses placing in Classes 1 and 2. Classifications are made on the basis of the number of points a city is deficient in such factors as water supply, fire department personnel and equipment, and building laws. Insurance gradings for cities over 30,000 population at present show nearly 72 per cent in Class 3 and 4, according to the study. Eight per cent are in Class 2. No city is yet in Class 1.

The principal aim of municipal officials should be to remove the most deficiency points at the least cost, the study said. In all but a few states, cities can secure from the insurance rating bureau in their territory not only the summary grading, but also details of the deficiency points on items covered. With this information, and with statements from grading engineers as to what improvements should be made in order to secure a better classification, the city can develop a long-range plan for improving fire defenses, it was pointed out.

The city can aid individual property owners by reminding them of the services of the rating bureau. In Parkersburg, W. Va., for example, the municipal Fire Prevention Bureau investigates the rate of any building on request of the owner or occupant and, through a rating bureau engineer, recommends changes that will effect insurance charge reduction. In one instance, a property owner reduced the rate on his building 50 per cent by making improvements costing less than $100, thereby saving $150 in premiums over a two-year period.

Cooperative action by city officials through state leagues of municipalities offers the most effective way of reducing state-wide fire losses—necessary before rates will be cut locally—the study said. Besides promoting fire prevention, the cities jointly can study loss records. North Carolina cities, for instance, gained a 25 per cent reduction on insurance rates for public buildings when a state league study revealed current rates to be higher than justified by the loss record.

As a general rule, when a city moves from one fire insurance classification to the next better class, there is a reduction of about 5% in premium rates.

Low-Rent Housing Project Saves Toledo $11,746 in City Services

TOLEDO, OHIO, is saving $11,746 a year on municipal services to the former slum area now accommodating Brand Whitlock Homes, government low-rent housing project, the National Association of Housing Officials notes. The saving was revealed in an analysis by the Toledo Housing Authority, which itemized costs for juvenile delinquency, tuberculosis, child welfare, fire and police protection, refuse collection and other services. Cost figures for these services before the slum area was built over with new low-cost housing stood at $13,811. Under present circumstances the city is expending $2,065.

Plan Commissions Established in Baltimore and Chicago

TWO MORE METROPOLITAN CITIES—Baltimore and Chicago—have established new city plan commissions, completing the list of 13 cities with more than 500,000 population which have set up such official organizations, the American Society of Planning Officials reports.

Baltimore's citizens set up its planning agency by charter amendment; in Chicago, the City Council passed an ordinance establishing the organization. The other cities in the group include Boston, Buffalo, Cleveland, Detroit, Los Angeles, Milwaukee, New York City, Philadelphia, Pittsburgh, St. Louis and San Francisco.

The Baltimore commission is made up of nine members, including the mayor, the city engineer and a member of the council. The remaining six members are appointed for their knowledge of city planning. They receive $20 a meeting, not to exceed $1,000 a year. The commission chairman receives $3,000 yearly.

The planning agency investigates all proposals and plans for construction of public improvements in Baltimore and reports to the board of estimate. It also must study and make recommendations on all ordinances or resolutions authorizing the issuance of stock or certificates of indebtedness for proposed public improvements. In addition, the commission has the usual powers as to preparation of a master plan, subdivision control and other planning activities.

Chicago's new ordinance calls for a commission proper of 22 members and an advisory board of 200. Members of the commission proper will include the mayor, heads of city departments, chairmen of council committees, and eight citizens appointed by the mayor, with approval of the council, from the membership of the advisory board.

The Society said the new commission replaced one which existed under a resolution passed in 1909. This organization, however, had few express powers and duties and no permanent status. The new commission must meet at least once a month, with seven members constituting a quorum.

The new city plan commission must, under the ordinance, prepare and recommend to the council a master plan for the development of the city, including the rehabilitation of depreciated areas. The commission also must cooperate with the local housing authority and the city council in the location of housing projects and the elimination of substandard conditions.

Utah Municipal Airports Get State Aid from Gas Tax

UTAH CITIES that maintain airports will gain funds for their operation from the state tax on gasoline supplied to airplanes, the American Municipal Association reports.

A new state law sets aside the tax collected on fuel sold at any municipal airport exclusively for upkeep of that port. To avoid the question of interference with interstate commerce, the act reads that gasoline is to be taxed in the supply or storage tanks before it is put in the airplane.

Cities in most states have found the upkeep on airports a growing financial burden, according to the Association. It is estimated that in Utah the new source of funds will take care of a substantial part of all maintenance expense of the ports.

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Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 60 John St., New York

Paul L. Green, Chairman; George W. Barton, William C. Brandes, Edward H. Eames, Ralph W. Eaton, William G. Eliot, III, James R. Guthrie, Harry C. Koch, E. B. Lefferts, Miller McClintock, William R. McConochie, Theodore W. Matson, Robert A. Mitchell, John B. Moriarty, William A. Van Duzer, Ralph F. Michel

Municipal Traffic Problems on State Routes in Indiana

Traffic Signals at Wrong Locations, Parking Chaos, Nutty Speed Signs

By JOHN B. MORIARTY
Traffic Engineer, State Highway Commission of Indiana

ON January 1, 1938, by legislative statute, the State Highway Commission of Indiana assumed the maintenance of state routes through all cities of 3,500 population or more, except Indianapolis. This meant that the Commission assumed the maintenance not only of the pavement surface but also of the traffic signals, signs, pavement markings, parking and speed regulations on over 400 miles of the heaviest-traveled streets in 79 cities and towns in the state. Consequently, the Commission became responsible for a goodly share of the urban problems of construction, maintenance and traffic control, where heretofore it had been chiefly concerned with rural problems.

The vast network of all-weather roads and streets covering our country today is evidence of the thorough job done by the various governmental agencies and the highway engineer in answer to the demand to get us out of the mud. The problems of road building from the surface down were met and solved, so that we have the smooth, long-life roads of today.

One of the most evident needs in traffic control is the use of standardized traffic-control devices and regulations which have the same meaning in any city or state. National and state manuals have been prepared to promote such uniformity. However, the multitude of local governmental agencies, each responsible for the control of traffic within its area, has resulted in such a variety of ideas and practices that present-day efforts in this direction have merely scratched the surface.

When the Indiana State Highway Commission took over the maintenance of state routes through cities, the administration of the responsibility of traffic control on these city streets offered an excellent opportunity for making long strides toward standardization and uniformity of traffic regulations and control devices throughout the state. The first objective was the standardization on those streets under Commission jurisdiction; the second was to encourage the cities to adopt the same standards for the streets under their local jurisdiction.

Within the last year and a half, progress has been made toward the ultimate accomplishment of both these objectives. Many of the 79 cities and towns have voluntarily followed the pattern and standards of signs and markings as applied to state routes on those streets under local jurisdiction.

In the administration of traffic control on city streets within the state highway system, the three problems which require the greatest amount of attention are those relating to traffic signals, parking and speed regulations.

Traffic Signals

There are at present 589 signalized intersections on the Indiana state highway system outside the city of Indianapolis, representing an investment of several hundred thousand dollars. The annual bill for electric power alone for their operation amounts to $50,000. A survey of all these intersections is being made to determine in the first place whether or not signalization is warranted and, if so, what equipment or change in operation is necessary to bring these signals up to standards.

This survey, 65 per cent complete, shows the following conditions:

1. One out of every four installations is unwarranted; this estimate is based on warrants approximately one-half of those outlined in the national Manual of Uniform Traffic Control Devices. Based on the full warrants as set out in this manual, four out of five of these intersections would not warrant signalization.
2. Four out of every five installations are substandard, in some respects conducive to increased hazard and inconvenience.

The Highway Commission has adopted the policy of removing those signals where the facts show that they are not needed. The cost of operation and maintenance saved by such removals can well be spent on the modernization of substandard installations where signalization is warranted. Thus, the driving public can best be served.

It is only natural for the average citizen to assume that the intersection nearest his home is the busiest and most hazardous in his city or state. It may seem so because it is the intersection he uses more often than any other. This assumption, combined with a second assumption that a traffic signal is the sure cure for all traffic evils, leads to a great many demands for unwarranted traffic-signal installations.

The sponsors of such demands should ask themselves these questions:

1. How much and what type of vehicular traffic use this intersection?
2. How many and what type of pedestrians use it?
3. Have there been any accidents there? If so, are they of a type that signals would prevent?
4. What type of accidents will signals tend to cause?
5. Is there serious delay to cross traffic except under abnormal conditions?
6. Is the expense of installation and operation justified on an economic basis?
7. Will I, as a pedestrian, obey this signal?
8. Will not the condition be corrected by some other type of traffic control at much less expense?

These questions are suggested to illustrate the necessity of getting at the actual facts regarding a proposed or questionable traffic-signal installation. During the last year and a half, signals have been removed at 30 locations; have been or are in the process of being modernized at 28 locations. New installations have been made at 13 intersections. From this small start, it is hoped that increasingly greater strides can be made in the standardization of all warranted signals and the

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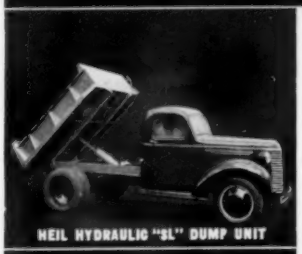
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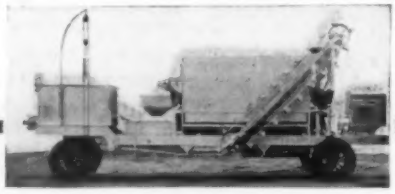

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6. Easily repaired without digging up

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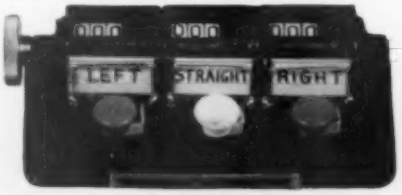
The Murdock Mfg. & Supply Co.
CINCINNATI Since 1853 OHIO

TRAFFIC COUNTING SIMPLIFIED with the NEW TRAFFIC COUNT DENOMINATOR

City, County and State Highway Departments throughout the United States are now using DENOMINATORS for making traffic period counts in a *fraction of the time taken by other methods.* Touch system operation of the machines enables the operator to keep eyes on the traffic at all times.



Counting units may also be classified to represent types of vehicles, license plates, etc.

WRITE FOR CATALOG

THE DENOMINATOR COMPANY
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New All-Purpose Portable PAINT SPRAYER

Low-cost, hand-propelled, all-purpose traffic line striper provides uniform coverage, perfect penetration, clean-cut edges. Can also be used for painting bridges, park benches, stadia, traffic signs, etc. Ideal for all cities—large or small. Gives year-round service. Speeds up marking jobs. Reduces costs. Also, power driven unit capable of marking 12,000 to 15,000 feet per hour. Write for literature.

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removal of all unwarranted ones.

Parking

In the opinion of the writer, one of the most dangerous and most uneconomical practices in the use of our street systems today is the general laxity of design, application and enforcement of parking regulations. One car parked too close to a corner may transform that corner from a safe intersection with adequate sight distances to a potential hazard at the approach of every vehicle on the cross-street. One car double-parked may transform the movement of traffic within a whole city block from an orderly stream of traffic to a snarl of congestion, with its attendant loss of time, money, safety, and patience.

In order to establish uniformity in combating haphazard parking conditions, the State Legislature, in session the early part of this year, established "no parking" restrictions for statewide application on all roads and streets at the following locations:

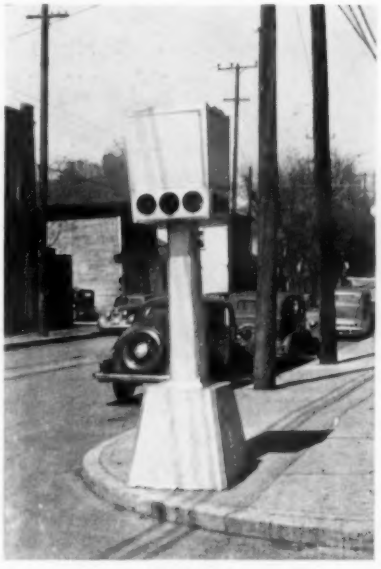
1. On a sidewalk;
2. In front of a public or private driveway;
3. Within an intersection;
4. Within 15 feet of a fire hydrant;
5. On a crosswalk;
6. Within 20 feet of a crosswalk at an intersection;
7. Within 30 feet upon the approach to any flashing beacon, stop sign, or traffic signal located at the side of a roadway;
8. Between a safety zone and the adjacent curb or within 30 feet of points on the curb immediately opposite the ends of a safety zone, unless the traffic authority indicates a different length by signs or markings;
9. Within 50 feet of the nearest rail of a railroad crossing;
10. Within 20 feet of the driveway entrance to any fire station and on the side of a street opposite the entrance to any fire station within 75 feet of said entrance (when properly sign-posted);
11. Alongside or opposite any street excavation or obstruction when such stopping, standing, or parking would obstruct traffic;
12. On the roadway side of any vehicle stopped or parked at the edge or curb of a street;
13. Upon any bridge or other elevated structure upon a highway or within a highway tunnel;
14. At any place where official signs prohibit stopping.

These provisions, which became effective on July 1, 1939, have been incorporated into an illustrative general parking plan which has been distributed to those maintenance employees of the Highway Commission responsible for the sign, curb and pavement markings restricting and regulating parking on state routes. Copies of the plan are also available to cities for use on streets under local jurisdiction.

This same law provides that the right-hand wheels of parked vehicles be parallel and within 12 inches of the right-hand curb, except where angle parking is permitted by local ordinance or by order of the State Highway Commission on streets and highways under their respective jurisdiction.

MEANINGLESS

UNMISTAKABLE



ARCHAIC

UP-TO-DATE

In marking state routes, the type of parking permitted depends primarily on street widths, as follows:

Width	
Up to 30	No parking either side
30 to 36	Parallel parking one side
36 to 50	Parallel parking both sides
50 to 60	Parallel one side, angle on other
Over 60	Angle parking both sides

The amount of street width available for parking is made still more restrictive if other factors are present, such as street-car tracks or heavy traffic volumes.

Speed Zones

Every cross-country driver is familiar with the following type of sign at the city limits of many cities and towns—"Speed Limit 15—ENFORCED." Such a sign defeats its purpose, because it is very evidently unreasonable in the first place, and a bluff in the second place.

In order to establish uniformity of application of the various speed limits, the following definitions are applied to all proposed speed zones on the state highway system:

1. 20-mph zones shall be established where at least 50 per cent of the frontage (including both sides of the street) for a distance of 500 feet or more, measured along the centerline of the street, is occupied by buildings in use for business.
2. 30-mph zones shall be established in locations outside of 20-mph zones where the total frontage on both sides of the street is occupied by residences or residences and business buildings under 100 feet apart. To determine such a zone, divide the number of front feet by the number of houses within the block.
3. 40-mph zones shall be established in locations not covered by 20- and 30-mph zones where the total frontage on both sides of the street is occupied by residences or residences and business buildings more than 100 feet and less than 300 feet apart.

The above definitions may be complicated by intersecting roads or streets carrying heavy traffic, by school buildings, factories and other special conditions. These conditions must be weighed in the field and adjustments made accordingly.

New York Uses Type D Controllers To Keep Heavy Traffic Moving

MORE than 1500 G-E Type D traffic-signal controllers are used to keep signals operating on New York City's busy intersections. They have proved their ability to serve reliably day after day with low maintenance costs. They provide the traffic-movement sequences needed on any intersection, from the simplest to the most complex.

The G-E Type D controller can easily be adapted to meet the needs of any municipality. If your city isn't one of the hundreds already using the Type D controller, write for our publication GEA-2712 and read details on its money-saving qualities. General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

SEE THE G-E "HOUSE OF MAGIC"
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Announcing the New TRAF-O-LINE MARKER

Here's the newest of Line Markers! The Littleford Traf-O-Line Marker. It's new in principle, costs less to operate, will put down single or double razor edge lines on any surface faster, easier, and more efficient than any marker you have ever seen.

The Traf-O-Line Marker will handle any kind of paint, lacquer, cutback asphalt or white-wash. No more clogging up of the lines, no more paint settling, no more pressure lines to leak. One control stops and starts spray instantly.

This Traf-O-Line Marker is the most modern marker ever developed. For further details, write Littleford Bros., Cin., O.

NEW IN PRINCIPLE
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BLACK TOP ROAD MAINTENANCE EQUIPMENT
LB
SINCE - 1900

LITTLEFORD

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500 E. Pearl St., Cincinnati, Ohio

The following rules are also followed in the use of speed limit signs:

1. A 30-mph zone must always be preceded by a 40-mph zone at least 700 feet in length.
2. A 20-mph zone must always be preceded by a 30-mph zone at least 500 feet in length.
3. The signs for the beginning of a section of road or street zoned for a certain speed must have the word BEGIN at the top.
4. The numerals on all BEGIN signs shall be reflectorized.
5. At the end of each zoned area the signs shall have the word END at the top.
6. Intermediate signs shall be placed at sufficiently frequent intervals to keep the motorist informed and to secure obedience.

In July, 1938, zoning was begun on state routes on the above basis. A preliminary count showed approximately 1,150 named places on state routes where zones might possibly be needed. An estimated 350 of the smaller villages and crossroads will need no zone. Up to July, 1939, of the 800 remaining locations, approximately 300 had been surveyed and zoned. The remaining 500 are being zoned as rapidly as possible. It was decided to zone first the most important cross state routes from state line to state line, and at the same time to take care of local requests for zones on the less important routes.

While the State Highway Commission is not an enforcement agency, it is believed that the reasonable application of speed zones, together with the uniformity of signs denoting these zones, will encourage voluntary obedience to the limits as well as make the enforcement efforts of the local and state police much easier and more effective.

London, Ohio, Planned for Sunshine

THE SMALL CITY of London, Ohio, population 4,500, is so platted that when the sun shines it reaches into every room in every house sometime during the day.

The city was laid out in 1812 by Patrick McLene, a native of London, England, and history states that he had spent so many hours of daylight in the "dark of the great English city for which London, Ohio, was named, that when he was given the job of making the plat of the Ohio municipality, he made every street so that the sun would shine into the rooms and make the place light."

McLene was an engineer and he did his work well. He platted the city in a northeasterly direction in such a manner that it, his plan, proved workable. There is none of the "dark" in the city, and every house that was built on the streets surveyed by McLene has sunshine in the rooms each day that Old Sol appears.

A. K. CHENOWITH.

Los Angeles' New Sports Center

THE Rancho Cienega Playground was the outstanding addition to the Los Angeles recreation system in 1938. The area comprising 30 acres is the largest municipal playground devoted exclusively to sports and recreation within the city. The site was donated by Mrs. Anita M. Baldwin in response to a request made by the Los Angeles Junior Chamber of Commerce. The new facilities include: four baseball diamonds, two softball diamonds, twelve tennis courts, two soccer and football fields, an archery range, an athletic stadium seating 6,000 persons and containing a ball park, football and soccer field and running track; team dressing building, fieldhouse, comfort stations, outdoor basketball courts, outdoor volley-ball courts, croquet courts, horseshoe courts, outdoor gymnasium; children's playground containing swings and slides, pergola sandbox, paddle tennis courts, ping-pong tables, game tables, bleacher accommodations at sports fields for 1,200 spectators, general landscaping, 17 acres of lawn, 9,574 feet of protective fencing, walks and automobile drives, parking accommodations for 400 cars.

City Manager Appointments

J. W. CHARLEVILLE, former Manager of Glendale and Pasadena, Calif., has been appointed City Manager of Long Beach, Calif., to replace R. M. Dorton.

James J. Berkery has replaced T. C. O'Mahony as City Manager of Limerick, Ireland.

Jay H. Sikkenga has been appointed City Manager of Oak Park, Mich., to replace Alexander Garrett.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

Recent sales of new issues from the August issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$750,000	Pittsburgh, Pa., Current Expense, 1939	1	1-5 Ser.	0.93
1,000,000	Maine, Highway	2	1-10 Ser.	1.00
160,000	Oneida Co., N. Y., County Home	1.20	5-5 Avg.	1.14
100,000	Manchester, N. H., Municipal Improvement and Equipment	1.5	1-10 Ser.	1.37
690,000	Suffolk Co., N. Y., Beach Improvement	1.60	7-5 Avg.	1.53
140,000	Wilkinsburg, Pa., Borough	2	3-16 Ser.	1.86
175,000	Sheboygan, Wis., Paving, Highway and Sewer	2	15-5 Avg.	1.89
1,355,200	Baltimore, Md., Burnt Dist. Imp., 1954 Loan Registered Stock	3.5	14.83 Avg.	1.94
1,118,000	Norfolk, Va., General Improvement	2.40	14.83 Avg.	2.45
1,460,000	Detroit, Mich., Street Railway Equipment Trust Certificates	2.5	2.33 Avg.	2.49
354,000	McMinnieville, Tenn., Electric System Revenue	3	10.33 Avg.	2.912
600,000	Akron, Ohio, Refunding	3	9.66 Avg.	2.92

Too Many Safety Campaigns End at Sundown
• Traffic safety should be practiced 24 hours a day. There's a weak link in the chain when such a campaign fails to reduce night as well as day fatalities. If such is the case in your community—look first to your street lighting.
The street lighting system which you pointed to with pride ten years ago may now be your Public Enemy No. 1. Statistics show that 50% of night traffic accidents are the direct result of inadequate visibility.
Union metal helps to promote safety after sundown with a complete line of steel lighting standards which are designed to place the high intensity luminaires in the proper position to provide increased visibility. And our experienced engineers are always at your service to help you plan a modern street lighting system that will meet your budget requirements.
Write today for complete information.
THE UNION METAL MANUFACTURING COMPANY
CANTON, OHIO
"Save Lives with Light"

Outdoor Lighting

Streets—Highways—Floodlighting

Light Your Streets to Fit Pedestrians and Fast Vehicles

By L. A. S. Wood
Chief Lighting Engineer,
Westinghouse Electric & Mfg. Co., Cleveland, Ohio

SINCE it is impracticable to limit speed within the range of headlamp visibility distance, and since with permitted beam candlepower it is impossible at this time to increase headlamp visibility distance to modern daytime driving speeds, the only possible solution of the night-traffic accident problem is the installation of scientifically designed systems of fixed lights on public streets.

Traffic Safety Lighting

Since the fundamental purpose of street lighting should be safety, greater emphasis is now placed on this phase of the problem, and it seems fitting that the term "traffic safety lighting" be substituted for "street lighting" as applied to urban thoroughfares not included in white way areas, and to interurban highways when such lighting meets the requirements of safety at night.

Traffic safety lighting is the practical application of the "science of seeing" to the night-accident problem and is based primarily on visibility. For this reason, traffic safety lighting should not be confused with the conventional street lighting to which we have been accustomed and which, for the most part, does not provide adequate visibility for safety.

In the early days of the depression, many American cities seeking to reduce operating expenses, curtailed their street-lighting services, and Detroit's experience in this kind of "economy" is described, with the conclusion, on page 131 of the March, 1937, issue of THE AMERICAN CITY.

A summary of the average annual fatality toll on the 31 miles of Detroit's streets lighted with modern equipment is as follows: For a three-year period of old "lighting," the average per year showed 48 killed at night, against 7 in the daytime; for an 18-month period of safety lighting, the yearly average was 13 night fatalities as against 9 day fatalities.

Commenting on a remarkable local demonstration of the value of adequate lighting, James E. Davis, Chief of Police, Los Angeles, states: "Inadequate lighting is the greatest single factor contributing to traffic hazards in city streets."

Where Urban Accidents Occur

In a recent survey of 47 American cities with a total population of 47,000,000, R. E. Simpson found that main traffic thoroughfares are the most dangerous city streets. Although representing barely 100 per cent of the total street mileage in this survey, they accounted for 77 per cent of all urban accidents. Of the fatalities, 69 per cent occurred at night. Minor traffic thoroughfares and residence streets accounted for most of the other accidents, few occurring in white way districts.

Urban modernization street-lighting programs based on adequate night visibility should therefore start with thoroughfares and be extended as rapidly as possible to other streets. Modernization programs are worthy of serious consideration, in reducing the number of night accidents toward a figure comparable with the number of daytime accidents.

Purposes of Street Lighting

In the Code of Street Lighting, the major purposes of urban street lighting are outlined as follows:

(a) To promote safety in the streets at night through adequate visibility.

(b) To increase the attractiveness and convenience of the street.

(c) To enhance the community value of the street.

Safety being the major factor in public lighting, it should be recognized that there is a definite relation between speed, visibility and traffic accidents.

Placing the Lights

The fundamental purpose of public lighting is to improve night visibility and it is probable that a greater increase in visibility can be effected by judicious luminaire location than can be secured otherwise for the same expenditure. Spacing, mounting height and type of equipment are interwoven and mutually dependent, and modern practice emphasizes the advantages of mounting heights of 22 to 25 feet or more.

The planting of trees on the lot line rather than near the curb is strongly recommended, not only on account of the better lighting of the street and sidewalk which this procedure makes possible, but also for the improved appearance of the street. The obstruction of light by foliage is sometimes the occasion for the adoption of lower mounting height. While deprecating the indiscriminate trimming of trees, the Committee on Street Lighting of the Illuminating Engineering Society feels that, where feasible, judicious trimming-off of the lower branches is to be advocated as preferable to mounting lamps lower than recommended. Modern pendent luminaires of the concentrating type permit higher mounting in foliage than was permissible with the earlier types.

Appearance

The appearance of street-lighting equipment should reflect good taste and sense of propriety. Simplicity, dignity and grace rarely displease and are never out of place as a visible ex-

Watch It Grow

HONOR ROLL

of Cities Relighting Main Traffic Arteries to Save Lives

ROME, N. Y.

GREENWICH, CONN.

AUSTIN, MINN.

STERLING, KAN.

THERE'S no question about it. American cities—all across the country—are relighting their thoroughfares to give motorists the visibility they need for safer night driving. And from these cities come reports of reductions in night accidents after installation of modern lighting. On 10 miles of Hartford streets night accidents dropped 46.5 per cent. Salt Lake City reports night accidents down 85 per cent on 3.4 miles of thoroughfares in the first year after lighting was installed. On 25 intersections in Los Angeles, night accidents dropped 84 per cent, and fatalities were ELIMINATED during a twenty-month "before-and-after" test.

Other city leaders are just as emphatic in their approval of modern lighting. Mayor E. H. Ethridge, of Rome, N. Y., shows his enthusiasm for his city's new lighting in his letter to the Central New York Power Corporation. If your city hasn't already launched a street-lighting modernization program, contact the nearest G-E office. The services of a G-E lighting specialist are available without obligation. Let us put our experience to work for you. General Electric, Schenectady, N.Y.

OFFICE OF THE MAYOR
ROME, NEW YORK
April 12, 1939

E. HUNTINGTON ETHRIDGE, Mayor

Mr. A. B. Morton
Central New York Power Corp.
Rome, N. Y.

Dear Mr. Morton:

For several months the City of Rome has been enjoying the benefits of the new street lights installed in the business section and the main traffic arteries of our City.

This modern installation is an outstanding improvement over the previous system of lighting, and we feel it will go a long way in reducing the accident hazard on our streets at night.

We appreciate the co-operation we received from your company which made it possible for this City to have the benefits of the latest and most efficient type of Luminaires as manufactured by the General Electric Company. This places our City of Rome in the ranks of those communities who by modernization of their street lighting are helping to save lives and reduce accidents and thus add to the comfort and happiness of its citizens.

Very truly yours,

E. H. Ethridge

E. H. Ethridge,
Mayor

GENERAL ELECTRIC

500-339

pression of civic service.

Lamp supports and equipment should harmonize architecturally and should be in keeping with the environment. Uniformity of equipment is desirable. So far as is compatible with good visibility, the lighting equipment should be inconspicuous.

Street Luminaires

The typical luminaires for street-lighting service illustrated here are made by the leading manufacturers and do not represent any particular product.

Luminaires of the older types indicated in Nos. 6 to 11 have been available for many years. Types 1 to 5 inclusive represent later developments embodying new and interesting features worthy of individual discussion. These luminaires, like all luminaires with controlled light distribution, are designed for use at definite spacing-mounting height ratios, the limits of which should not be exceeded for effective visibility. Uniformity is improved by closer spacing. These pendent luminaires should be mounted at least 3 feet out over the roadway.

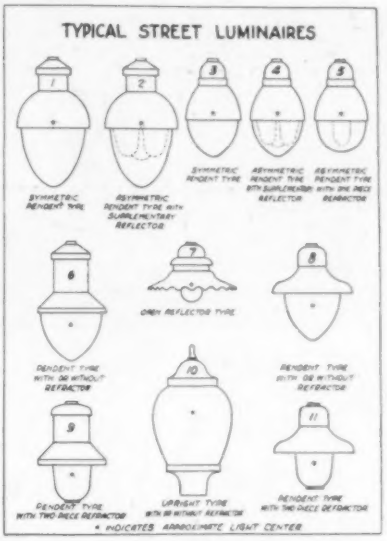
No. 1 is designed for use with lamps up to 750-watt multiple or 15,000-lumen series. It consists of a metal canopy and dome in which is mounted an extended hemispherical reflector. The reflector contour is designed to produce *symmetric* distribution with a vertical cut-off at approximately 20 degrees below the horizontal. The light source is located within the reflector and completely shielded from the eye of the observer. This luminaire is designed for a maximum spacing of three times the mounting height.

No. 2 adds supplementary reflectors within the globe to produce *asymmetric* distribution. This luminaire is designed for a maximum spacing of five times the mounting height.

No. 3 is designed for use with lamps up to 500-watt multiple or 10,000-lumen series. It possesses the same light distribution characteristics as No. 1 and is similar in design except that the metal dome is eliminated and the reflector is attached directly to the canopy. This luminaire is designed for a maximum spacing of three times the mounting height.

No. 4 is for use with lamps up to 500-watt multiple and 10,000-lumen series. It possesses the same light distribution characteristics as No. 2, and is similar in design except that the metal dome is eliminated and the reflector is attached directly to the canopy. This luminaire is designed for a maximum spacing of five times the mounting height.

No. 5 is similar in every respect to



No. 3 except that a single-piece refractor, designed to produce lateral distribution, is substituted for the "deformed" globe, and a single supplementary reflector is located within the refractor. The distribution is asymmetric, and this luminaire is designed for a maximum spacing of eight times the mounting height. A minimum mounting height of 25 feet is recommended for this style of luminaire.

Heavy and extra-heavy traffic thoroughfares are the most dangerous streets, and on these silhouette vision prevails except during the night rush hours. At these times, traffic density on main thoroughfares often becomes so great that the street surface is partially invisible. Silhouette vision is thus impaired and a combination of surface detail and silhouette vision is desirable. To achieve this combination at reasonable expense, the asymmetric reflector types Nos. 2 and 4 are suggested.

Medium traffic and light traffic thoroughfares may be classed together in respect to the type of luminaire recommended, although lamp size, spacing, and arrangement may vary in accordance with the width of the street. The luminaire suggested for these applications is the refractor-reflector type No. 5, at a spacing not to exceed six times the mounting height. With this luminaire, a high vertical component is present and a considerable degree of surface detail discernment prevails.

Industrial and residence streets may be classed together in respect to the type of luminaire recommended, although lamp size and spacing may vary. The luminaire recommended for this application is the refractor-reflector type No. 5 at a spacing not to exceed eight times the mounting height.

Business streets are illuminated primarily for the enhancement of community values and to add to the attractiveness of the street. Appearance is an important consideration. Spacings are generally closer than those applying to other classes of streets, and the level of illumination is usually high enough to take care of all traffic requirements. Pendent luminaires Nos. 1 to 4, No. 6, and upright luminaire No. 10 are suggested. An opposite arrangement or equivalent is recommended with variations of arrangement and lamp size, depending on the importance of the street and its width. If luminaires 1 and 3 are used, a spacing of three times the mounting height is recommended. A spacing of five times the mounting height for luminaires No. 2 and 4 should be used. Alleys in business and industrial sections, and exits and intersections of public alleys in residence districts, should be lighted.

Death and Thievery Bring Light to Chetopa

THROUGH the residential and business districts of Chetopa, Kans., population 1,500, pass U. S. Routes 166 and 59. These highways carry a great deal of night truck traffic. The open-reflector center-suspension street lamps at each intersection had been proved inadequate by far too many accidents. As the first photograph indicates, pedestrians could not be seen by drivers. An allied problem, no less troublesome locally, was the thievery of packages from farmers' cars parked on side streets. (See illustrations, p. 111.)

The solution was up to the city, as for 33 years it has owned its electrical supply. It was decided to install modern equipment not only on these highways but on the side streets as well. On the highways the lights would reduce accidents; on the parking streets, they would make unnecessary an expensive addition of policemen.

It worked out that way, too, for after the installation of General Electric luminaires on Union Metal standards, pedestrians were safe, accidents decreased, the police stopped the pilfering, and Chetopa not only held the farm trade, but drew additional patronage from neighboring communities that did not provide this new and attractive protection.

Result: The citizens of Chetopa regard this municipal investment as the soundest they ever made, and plan extensions in the residential section.

S. J. REVER,
Consulting Engineer, Parsons, Kans.

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A NEW HINGED DOOR REFLECTOLUX

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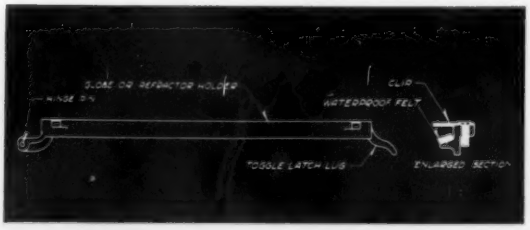
With These Advantages

Quick acting, self-locking toggle-catch of die-cast brass. Sturdy hinge for greater safety. Weather-tight and leak-proof. Globe may be opened or closed with one hand, leaving the other free for maintenance and service work.

HERE'S HOW IT OPERATES

Street lighting maintenance men will welcome the fact that both hands are free for servicing.

The new REFLECTOLUX JUNIOR reduces maintenance and service costs because both hands are free.



Globe holder is hinged at one side and locked by easily operated toggle-catch at the other. Phosphor bronze clips hold the globe safely in place.

Westinghouse Lighting Equipment

CHETOPA, KANS., BUSINESS DISTRICT BEFORE AND AFTER INSTALLING THE LIGHTING SYSTEM THAT REDUCED ACCIDENTS AND PILFERING AS DESCRIBED ON PAGE 109

Sodium Lights Save Nine

NINE UNIDENTIFIED PERSONS in the vicinity of Salt Lake City are alive today, all unaware that they owe their lives to a three-mile stretch of sodium safety lighting on U. S. Route 91. Twenty-eight other unsuspecting citizens have been spared bodily harm by these same safety lights. These facts are revealed in accident data compiled by the Salt Lake County Sheriff's office under the direction of George M. Haley, County Surveyor.

Developed by General Electric scientists, the sodium lights were installed in June, 1937, after 12 fatal night accidents and 57 night injury accidents had occurred on the three-mile stretch in two years. Records as of June, 1939, show that fatal night accidents have dropped from 12 to 3, and that night injury accidents have declined from 57 to 29. This decrease resulted despite the fact that the early night traffic on the three miles of lighted highway has increased to over 1,500 cars per hour.

Toledo to Replace 3,500 Arc Lights

AN AGREEMENT has been reached between the Toledo Edison Co. and the city for the rebuilding by the former of the street-lighting system, including the elimination of about 3,500 present arc lights, the moving of present incandescent symmetric luminaires from traffic thoroughfares to residential districts, and the installation on these traffic thoroughfares of new incandescent luminaires having controlled light distribution and with increased mounting heights.

W. C. CHAMPE,
Electrical Engineer, Division of Engineering and Construction.

Lights of Buffalo, N. Y.

WHEN THE CITY OF BUFFALO, N. Y., installed 80 new lighting units on a heavy-traffic artery through Delaware Park in August, 1937, it brought the total number of lamps to the present 21,754, classified as follows:

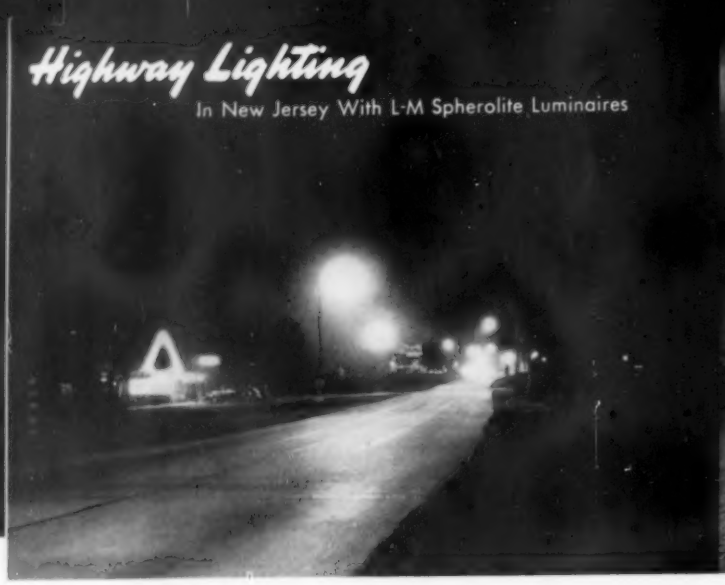
AERIAL LINES: ALL EQUIPMENT OWNED BY ELECTRIC COMPANY

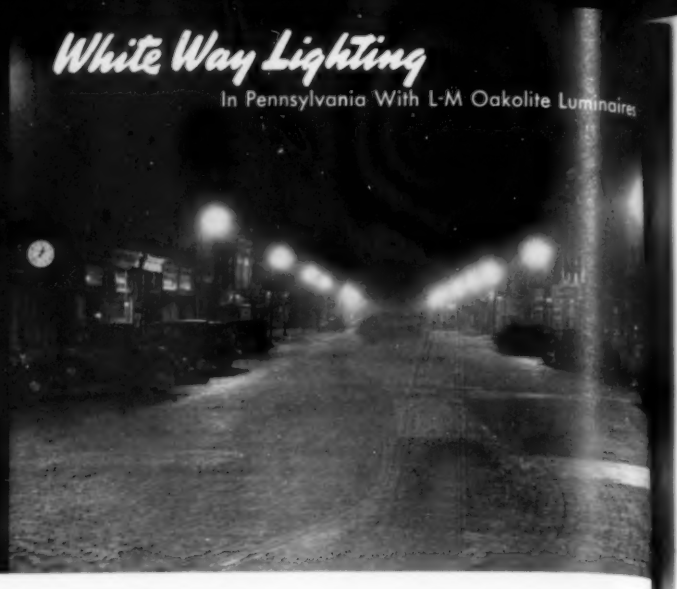
	Number of Lamps in Service	Average Wattage	Cost per Year
Lumens			
2,500	1,335	145.3	28.00
4,000	1,386	218.6	36.00
4,000 (24-hour)	92	300	60.00
6,000	39	342.9	48.00
Danger lamps—24-hour (two-50-watt bulbs)	52	100	50.00
1,000 (red bull's-eye)	1	65.7	10.50

UNDERGROUND LINES: STANDARDS FURNISHED BY CITY

Inverted luminous arcs — (3-light standard)	260	532	75.00
1,000	5,091	65.7	28.00
2,500	3,139	145.3	36.00
4,000	1,075	218.6	48.00
6,000	4,581	342.9	60.00
10,000	718	500	68.00
10,000 (floodlight)	1		75.00
10,000 (sodium vapor lamps)	8		75.00
	21,754		

All lamps 4,000 hours per year.





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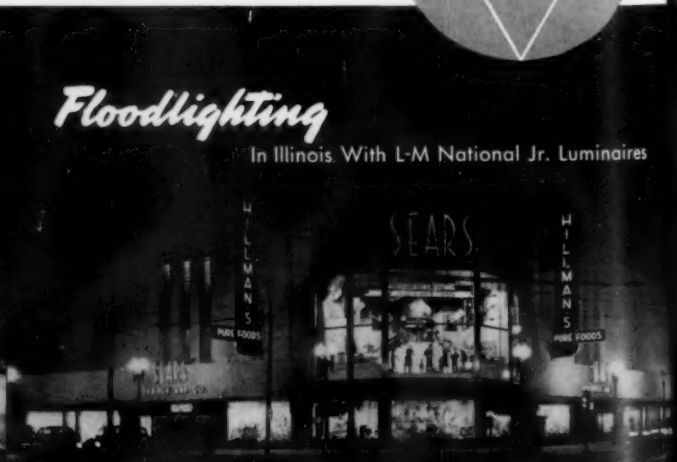

LINE MATERIAL CO.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of
"The Master Plan"

Junk Yards

CONNECTICUT.—*Levine v. Board of Adjustment of City of New Britain*, 7 Atl. 2d. 222 (Supreme Court of Errors, June 8, 1939).—Under an ordinance of the city of New Britain passed February 23, 1937, all junk yards must be licensed. Such yards must be inclosed by a solid fence not less than 5 feet high, and no junk shall be piled in any junk yard to a height exceeding the height of the fence surrounding it. No junk shall be placed within 100 feet of any street line or within 50 feet of any adjoining property line, or within 150 feet of any dwelling house. This ordinance shall apply to all junk yards whether or not existing at the time of the passage of this ordinance, but the requirements concerning distance from street lines, property lines and dwelling houses shall not apply to existing junk yards.

The plaintiff, Levine, was the owner of a piece of land, and wished to conduct a junk yard upon it, but it was too small to do so in conformity with this ordinance. On March 6, 1937, Levine deposited some junk on his premises, suitably fenced, and on March 23, 1937, applied to the Building Inspector of the city for a certificate of occupancy, which the Inspector refused to give on the ground that the ordinance prohibited the use of this property for that purpose. The plaintiff claims that this ordinance is not a proper exercise of the police power.

Even though a business is not a nuisance per se, it is within the police power of the state to declare that in particular circumstances and in particular localities a business which is not a nuisance per se shall be deemed in fact and in law a nuisance. A regulation of junk yards by law has generally been held to be within the proper exercise of the police power. The power of the city to make ordinances is not confined to nuisances per se, but includes the power to treat as nuisances those things which may be nuisances but as to which there may be an honest difference of opinion in impartial minds. Junk yards fall within this classification. Nor was the power of the city limited to the abatement of such a business as that of the plaintiff's as a nuisance, but it included the adoption by the municipality of reasonable regulations for the conduct of the business for the common good of the inhabitants of the city.

The provisions of the ordinance are uniform in their application except that existing junk yards are exempt from the requirements concerning distance from street property lines and dwelling houses that junk may be stored. This exemption does not render the ordinance invalid as an unreasonable discrimination. The power to adopt zoning regulations, like the power to regulate nuisances, finds its justification in the police power; and it is quite common in zoning ordinances to permit the continuance of existing nonconforming uses.

In *Sammarco v. Boysa*, 193 Wis. 642 (quoted with approval by the Court in this opinion) the Supreme Court of that state upheld an ordinance of the city of Milwaukee providing that automobiles carrying a volatile inflammable liquid should not be placed in modern buildings of a certain character, but that this ordinance should not prevent the owner of an existing garage from keeping not more than two automobiles for his own use in a portion of a building not of the required character. The Court said:

"There is a manifest difference between prohibiting the erection of undesirable buildings, or buildings to be devoted to undesirable purposes within a given area, and compelling the destruction of buildings already constructed or prohibiting a continuance of the use to which they may be devoted. In the one case the owner has made expenditures in the construction of his building or in fitting up his premises for the use to which they are devoted, while in the other case no such expenditure has been incurred. This circumstance furnishes an unimpeachable basis for classification for the purposes of legislation such as we are construing. That the legitimacy of such classification has received general and widespread recognition with reference to related subjects is apparent upon casual reflection. A familiar example is the establishment of fire limits in cities. Ordinances establishing such limits quite universally provide that the inhibition against wooden and inflammable buildings shall be prospective only; existing buildings being exempted from the provision of the ordinance. Regulations relating to the installation of plumbing, electric wiring, etc., also customarily apply only to buildings to be erected in the future. . . . So-called zoning laws and ordinances . . . quite generally contemplate the accomplishment of the purposes of such laws by regulations prospective in character, leaving existing buildings and businesses undisturbed. . . . To assert that [such ordinances] deny the equal protection of the law would not only defeat the purpose of zoning laws in general but it would amount to a declaration that society is powerless to prevent the growth and development of an evil without completely stamping out the evil.

The provision of this ordinance prohibiting the storage of junk within a certain distance from street lines and dwelling houses was entirely reasonable. Its purpose was to prevent annoyance to adjoining proprietors and the public passing in the street. Its effect, of course, was to prohibit the establishment of further junk yards except by those whose property was large enough to conform to the terms of the ordinance. The plaintiff has no legal ground of complaint because the dimensions of his land are unsufficient to permit him to conform to these requirements.

Zoning Ordinance—Uniformity within Districts

NEW YORK.—*Matter of Green Point Savings Bank*, Appellate Division, reported in *New York Law Journal*, May 16, 1939, p. 2258.—In revoking the permit for a gasoline station and storage tanks, the Court states that the permit was issued by the Town Board of the town of Hempstead primarily under the zoning ordinance of the town, Sec. 70, Subd. 10, as amended; and that the provision is unconstitutional and invalid because of lack of uniformity, as required by Sec. 262 of the Town Law.

EDITOR'S NOTE.—So far as relevant, this section reads, "All such regulations shall be uniform for each class or kind of buildings, throughout such district."

NEW YORK.—*In re Ostrander and Another*, Supreme Court, Nassau County, reported in *New York Law Journal*, May 17, 1939, p. 2282.—The petitioners seek an order directing the incorporated village of Rockville Centre to issue a permit for the erection of an automobile service station on their property, which is zoned for business. In the zoning ordinance of the village such a building is permitted in such a district; provided that no premises except *in* an Industrial District shall hereafter be used for such a building unless the application for the permit shall be accompanied by the consent of the owners of the property within 100 feet from the property on the same side of the street on which such building is to be erected, and by the owners of property within 100 feet on the opposite side of the street; and no such permit shall be hereafter issued unless the application shall have been passed upon affirmatively by the Board of Trustees of said village; but nothing herein contained shall require the applicant to obtain the consent of the owners of property used for the dispensing of gasoline, oil, air or repair of motor vehicles.

In this case the consents of property owners were obtained, but the affirmation action of the Board of Trustees was not.

Held, on the authority of the Green Point Savings Bank case that the requirement of affirmative action by the Board of Trustees is contrary to Section 262 of the Town Law and unconstitutional and void, for lack of uniformity, and that the permit should be issued to the petitioners.

EDITOR'S NOTE.—This case makes the meaning of the preceding case, clear.

Esthetics—Police Power

An article entitled "Aesthetics and Zoning," by T. W. Mackesey, will be found in the April, 1939, number (Vol. 3, No. 3) of *New York State Planning News*, published at Ithaca, N. Y.

Off-Street Parking

The Plan It, issued by the City Planning Commission of Portland, Ore., Vol. 13, Nos. 1 and 2, for January-February, 1939, contains an interesting discussion of Off-Street Parking.

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POLICE RADIO TELEPHONE EQUIPMENT

Municipal Law Notes and Decisions

Prepared by National Institute of Municipal Law Officers, Washington, D. C.

John A. McIntire and Charles S. Rhyne, Legal Counsel

Parking Meters

The Supreme Court of West Virginia has held valid a parking meter ordinance adopted by the city of Addison, overruling contentions of abutting property owners that their rights are infringed, that the ordinance is a revenue measure setting up an indirect method of taxation, and that parking meters cannot be installed unless "indispensably necessary" to the regulation of traffic and parking. *County Court of Webster County et al* v. *Roman et al*, 3 S. E. (2d) 631.

The three chief legal problems raised in the reported parking meter cases to date are: (1) Whether motorists are entitled to free use of streets; (2) Are the parking meter ordinances a proper police power regulation or an invalid revenue measure? (3) Do abutting property owners have rights that are interfered with by the meters? On these problems the following court decisions have been reported in addition to the West Virginia case: *State ex rel Harkow* v. *McCarthy*, 126 Fla. 433, 171 So. 314 (1936); *City of Birmingham* v. *Hood-McPherson Realty Company*, 233 Ala. 352, 172 So. 114, 108 A. L. R. 1140 (1937); *City of Birmingham* v. *Odum et al*, 172 So. 124 (1937); *Harper* v. *City of Wichita Falls*, 105 S. W. (2d) 743 (Tex. Civ. App. 1937); *Ex Parte Harrison*, 122 S. W. (2) 314 (Tex. Crim. App. 1938); *Ex Parte Duncan*, 179 Okla. 355, 65 P. (2d) 1015 (1937); *In re Opinion of the Justices*, 8 N. E. (2d) 179 (Sup. Jud. Ct. Mass. 1937); *State* v. *Goldberg*, 1 Atl. (2d) 101 (R. I. 1938); *Gilsey Buildings Inc.* v. *Incorporated Village of Great Neck Plaza*, 11 N. Y. Supp. (2d) 604 (Sup. Ct. N. Y., Nassau Co. 1939); *Clark* v. *City of New Castle*, 32 Dist. and Co. Court Reports 371, 30 Mun. 55 (Penna. Common Pleas Court 1938).

The Alabama cases hold a parking meter ordinance of the city of Birmingham invalid: the Rhode Island case holds that the Bureau of Police and Fire of the city of Providence does not have statutory power to enact a regulation imposing a fine for violating a parking meter ordinance, but all the other cases listed hold parking meter ordinances valid.

The following unreported decisions have upheld the validity of parking meter ordinances: *Butterfield* v. *City of Oklahoma City*, Case No. 87560, opinion filed July 24, 1935, Okla. County Court: *Dual Parking Meter Co.* v. *van Riper, City Auditor of Bakersfield*, noted in Western City Magazine, August, 1937, page 18; *Stearn Bros. Inc. et al* v. *City of Norfolk*, opinion filed Dec. 10, 1937, Court of Law and Chancery of the City of Norfolk; *Salt Lake City* v. *Wooley*, Case No. 10368, opinion filed Dec. 10, 1938, District Court, 3rd Judicial District, in and for Salt Lake County; *Speeth* v. *City of Cleveland*, Case No. 16992, Court of Appeals of Cuyahoga County (8th District of Ohio), decided Feb. 17, 1939, no opinion, affirming decision of Common Pleas Court of Cuyahoga County, Ohio, in Case No. 477294, decision dated July 11, 1938, no opinion.

The cases listed above are all of the parking meter cases coming to our attention to date.

Automobile Trailer Camps

On July 6, 1939, the Supreme Court of Michigan held valid in its entirety the city of Detroit's Automobile Trailer Camp Ordinance. The chief contentions of the camp operators were: (1) that the provision requiring 65 per cent of the owners of realty within 600 feet of an automobile trailer camp to consent to the license for maintenance of the camp unconstitutionally delegates legislative power of the city to such adjacent property owners; (2) the prohibition against the parking of occupied trailers in trailer camps for more than an accumulated period of 90 days in any one year is unreasonable and invalid; (3) The ordinance unconstitutionally deprives automobile trailer camp owners of property rights.

The Court considered and overruled the above contentions, holding that the ordinance contains proper regulations under the city's police power. Objection to the $10 license fee as unreasonably high was abandoned in the Supreme Court, although that point had been vigorously urged in the lower court. *Cady et al* v. *City of Detroit*, 286 N. W. 805.

Another court decision upholding an automobile trailer camp ordinance is *Spitler* v. *Town of Munster*, 14 N. E. (2d) 578 (Ind. Sup. Ct. 1938). *People of the State of Michigan* v. *Gumersol*, 4 Municipal Law Journal 4 (Justice of Peace Green, Village of Orchard Lake, Mich.), held local building codes and zoning ordinances applicable to automobile trailers. *People ex rel Herzog* v. *Miller et al*, 11 N. Y. Supp. (2d) 572 (Sup. Ct. N. Y. County), holds that for purposes of taxation an automobile trailer is to be classified as real estate where it is used for a lunch wagon and connected with the city sewer, gas and electric facilities. *Arid et al* v. *Aetna Life Insurance*, 4 Municipal Law Journal 57 (U. S. Dist. Ct. Texas, March 6, 1939), holds that an automobile is a "building" within the meaning of that word in construing a policy of life insurance. The above decisions exhaust the existing case law on automobile trailers and camps.

Annexation

Evidence that 87 per cent of resident freeholders of territory sought to be annexed opposed annexation, together with evidence of adequate police, fire and educational systems, justified denial of city's petition for annexation. *City of Lexington* v. *Rankin*, 128 S. W. (2d) 710 (Ky.).

Bonds

Only property within municipality at time of bond election could be named in mandamus writ as liable for taxes to pay the bonds. Property in territory annexed to successor city held not liable. *State* v. *City of Pompono*, 188 So. 610 (Fla.).

Bonds—Improvement District

City of Olympia does not have power to enact ordinance establishing a revolving fund to pay defaulted improvement district bonds. *State ex rel Booth* v. *Tatro*, 92 Pac. (2d) 206 (Wash.).

Codes—Effect on Ordinances Omitted

Ordinances omitted in codification were held repealed in declaratory judgment proceedings. *City of Herrodsburg, et al* v. *Southern Railway Co.*, 128 (S. W. 2d) 233 (Ky.).

Electricians—License Requirements

City of Atlanta ordinance requiring the passing of an examination as to ability as a condition precedent to issuance of electrician's license held unreasonable and invalid. *Richardson* v. *Coker*, 3 S. E. (2d) 636 (Ga.)

Housing

Under state law a city must appropriate money to pay preliminary expenses of its Housing Authority for the first year of the Authority's existence. *State ex rel Helena Housing Authority* v. *City Council of City of Helena et al*, 90 P. (2d) 514 (Mont.).

Junkyard—License

Town could refuse license to operate junkyard at a location which menaced town's water supply. *Town of Belmont* v. *Parent*, 7 Atl. (2) 255 (N. H.).

Noise—Dance Music a Nuisance

Holding that a municipal corporation or quasi-corporation is not entitled to preferential treatment in a question of maintenance of a nuisance, the Court enjoined as a nuisance the playing of dance music outdoors in a residential area after midnight week days and after 1:00 A. M. Saturday nights and on evenings preceding holidays. *Peters* v. *Moses*, 12 N. Y. S. (2d) 735 (Sup. Ct. N. Y. County).

Officers—De Facto, Claim to Fees

A *de facto* mercantile appraiser for the city of Philadelphia could not recover fees of the office, as they belong to the *de jure* holder of the office. *Cooke* v. *Roberts et al*, 7 Atl. (2d) 357 (Pa.).

Pensions

Beneficiaries of police relief and pension fund could maintain an action to recover for the fund monies wrongfully withheld by city, and attorneys for the beneficiaries were entitled to attorney's fees from the fund recovered. *Allen et al* v. *City of Omaha*, 286 N. W. 916 (Nebr.).

Picketing

Ordinance regulating picketing held unauthorized under city of Palm Beach charter. *State ex rel Meredith et al* v. *Borman*, 180 So. 669 (Fla.).

Police—Removal of

Removal of a police officer for refusal to testify before a grand jury under plea of constitutional protection against self-incrimination held proper. While the individual immunity was recognized as to criminal process, choosing to invoke such protection and refusal to testify was a violation of the paramount duty of a public officer. *Christal* v. *Police Commission of San Francisco*, 92 P. (2d) 416 (Calif. App.)

Salaries

New York constitution providing against reduction of salary during term of officer held to control and invalidate as to constitutional office charter provision to the effect that payment of salary less than due was accord and satisfaction unless protest was noted in signing payroll. *Finn* v. *City of New York*, 13 N. Y. S. (2d) 468 (N. Y. Sup. Ct. N. Y. County). (Note: N. Y. decision apparently contra: distinguished as not involving constitutional office. See *Shevlin* v. *La Guardia*, 279 N. Y. 649, 18 N. E. (2d) 43.)

Seattle ordinance interpreted as requiring payment of time and one-half to employees working on Sundays and holidays, although such days are part of employees' 40-hour week. *State ex rel Hailzell et al* v. *City of Seattle*, 92 Pac. (2d) 199 (Wash.).

Taxation—Foreclosure Suits

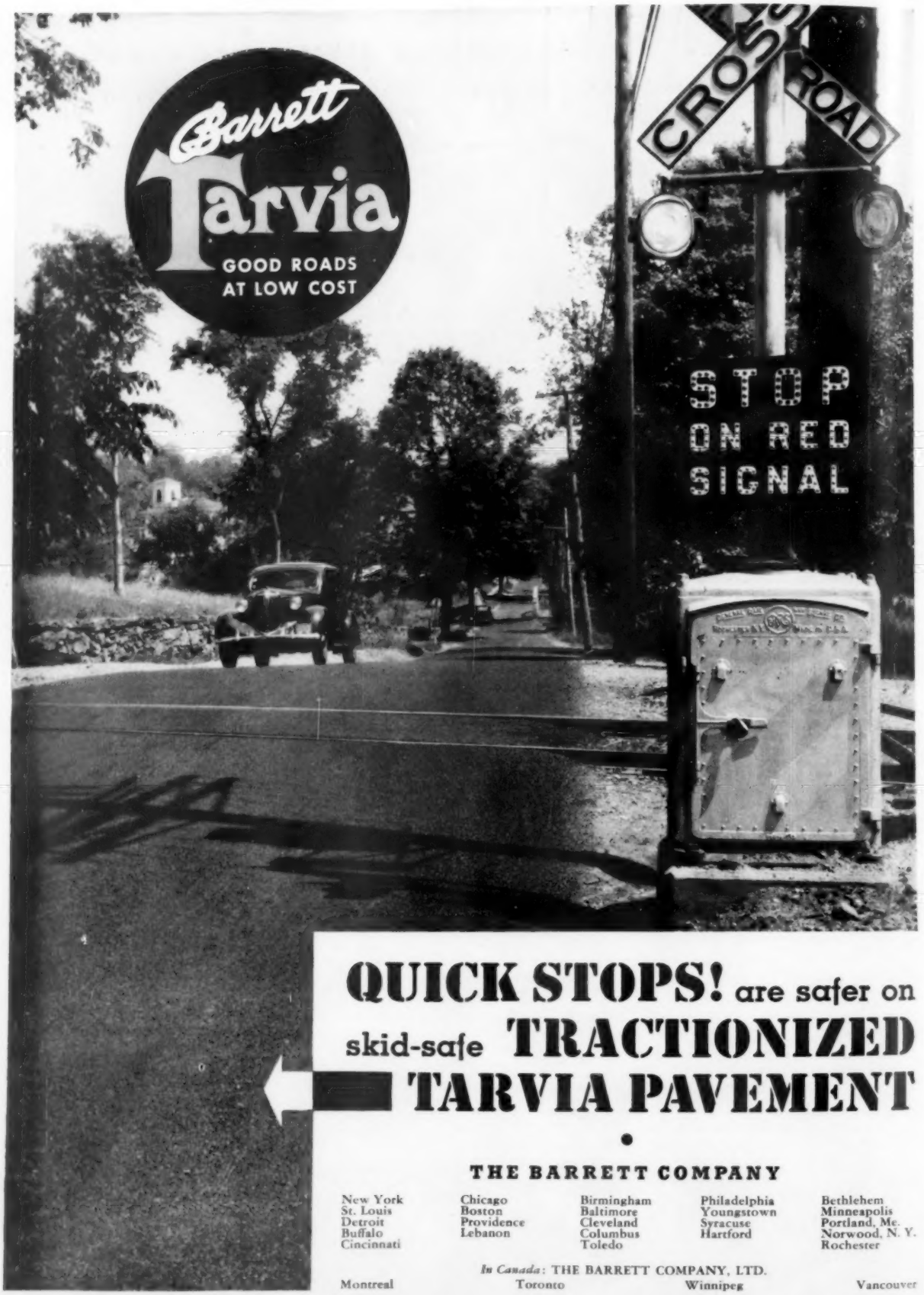
In proceedings to foreclose tax liens property owners could not attack legal existence of city—only state attorney general by *quo warranto* can attack such existence. *Certain Lands on Which Taxes Are Delinquent* v. *City of Steuart*, 188 So. 605 (Fla.).

Taxation—Gross Sales Tax

Ordinance imposing a license tax upon wholesale merchants of 61c per $1,000 of their sales for preceding year held valid. *Bentley-Gray Dry Goods Co. et al* v. *City of Tampa*, 188 So. 758 (Fla.).

Vending Machines—License Conditioned on Residence

Ordinance licensing and regulating automatic vending machines and requiring that licensees be either residents or maintain business addresses in the city held valid. *Larson et al* v. *City of Rockford*, 21 N. E. (2d) 396 (Ill.).



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Civic Organization

Organizing Our Town, and The Town Score Card.—By R. C. Morrison, Director, Holland's Southern Institute for Town Service, Dallas, Texas. 1939. 48 *pp.* 50c.

This pamphlet gives information on how to determine what a town lacks to make it ideal, and what can be done to make the town what it can and should be. It outlines the steps to be taken in setting up a civic organization such as a Town Forum, suggests activities for the organization's program, and includes a model constitution and by-laws. A score card for rating any city, large or small, against an assumed ideal city rating 100 per cent, includes points for phases of social, economic and governmental life.

Government and Administration

City Problems of 1938-39—The Annual Proceedings of The United States Conference of Mayors, New York City, May 15-17, 1939.—Edited by Paul V. Betters, Executive Director of the Conference. U. S. Conference of Mayors, 730 Jackson Place, Washington, D. C. 108 *pp.* $3.00.

The principal subject for discussion at the annual Conference of Mayors this year was that of relief and unemployment. Also discussed were Federal-city problems—housing, airports, taxation of municipal bonds, the city street in the national highway picture; problems of finance and taxation, and of labor. Committee reports and resolutions are of course included in the Proceedings.

Housing

Public Housing—Weekly News from American Communities Abolishing Slums and Building Low-Rent Housing. Edited by John R. Ellingston. U. S. Housing Authority, Federal Works Agency, Washington, D. C. 4 pp. Free to local housing authorities, other publications, citizens' housing committees, etc. $1.00 a year for private subscriptions.

This is the new official weekly publication of the USHA, the first issue of which came out August 11, 1939. Its purpose is to report the progress of local housing authorities, to pool the ideas and experience of housers, to report new technical developments in the field of housing. Through it the 14 Divisions of the USHA will circulate information of general interest. Summaries will be published of basic data relating to the USHA program, such as volume of construction, costs, income groups served. Examples of the type of item contained in the first two issues of the publication are articles on construction costs of the first five USHA-aided projects; new techniques for sinking piles; pamphlets issued by Pittsburgh and Louisville authorities; cutting of housing utility rates in North Carolina; the new labor pact outlawing jurisdictional disputes; cutting the time for drying concrete in New York projects. Sections are included on Current Housing Literature, Construction Bids, Legal Notes.

Civil Service

Manual of Procedure for Municipal Civil Service Commissions.—New York Civil Service Department, Albany, N. Y. 1939. 88 *pp.*

The first main section of this manual describes the Procedure for the Established Personnel Functions, including classifications; examination, certification, appointment; transfer, payroll. The second discusses "Additional Functions Now Assumed by Progressive Civil Service Commissions," such as duties and wage classification, probation, attendance and leaves, service ratings, training, public reporting and others. Numerous illustrative forms and schedules are given.

Housing

Housing the Masses.—By Carol Aronovici, Ph. D., Lecturer on Housing and Community Planning at New York University and Columbia University. John Wiley & Sons, Inc., New York. 1939. *xv* + 286 *pp.* $3.50.

In the chapters on Land and on The Law and Housing, more than in most housing books, much-needed emphasis is placed on problems of land planning and control and on a wide range of attempts to raise housing standards by legislative action. Other chapters discuss People; Money; Earning Capacity and the Housing Market; Home Ownership; Urbanism and Housing; Architecture and Housing; Housing Education; The Housing Survey and Housing Research. A critical bibliography on Housing is also included.

Equipped with a wealth of information accumulated over more than a quarter-century of enlightened service as writer, lecturer, or consultant, Dr. Aronovici seems to have leaned a bit too heavily here and there on an ordinarily excellent memory for names and facts. The book serves rather as a stimulating guide for a tour through vast regions of housing and planning ideas—on many of which the author does not hesitate to express very positive convictions—than as the work of a meticulous historian or cautious social scientist.

In the Preface the task of intelligent workers for better housing is defined as "a movement intended to wrest from an unfavorable economy the means for adjusting the social, economic, legal, and technical factors affecting costs and fitness of housing so that the masses of the people may acquire the right to decent shelter in the same degree that they have acquired similar rights in matters of health and public education."

Dr. Aronovici has evidently used the word "masses" in the title of his book as meaning not families of low income alone, but all the people. Impatient with the present emphasis on slum clearance, he concludes his Introduction with the following paragraph: "The poor must, of course, be provided for first, but this is not the fundamental function of the housing movement, except as it would be facilitated by all the instrumentalities which might be created in the interest of better housing for all the people. If only we could be liberated from the slum and lower-income-group complexes, we might forge ahead in evolving a policy of housing which would affect the welfare of every individual and family in the land, and raise standards favoring not only the poor but likewise the masses of American people."

The book is admirably illustrated; indeed, the 32 full-page photographs, beautifully reproduced, may alone be worth to many readers the price of the volume.

Planning

Proceedings of the Fifth Pacific Northwest Regional Planning Conference, at Seattle, Wash., April 27, 28 and 29, 1939.—Pacific Northwest Regional Planning Commission, National Resources Committee, Region No. 9, and Northwest Regional Council, Portland, Ore. 1939. *vi* + 186 *pp.*

Besides the consideration of the general problems concerning the best use of the resources of the Northwest Region, this conference had as its purpose the consideration of the specific problem of "migration and the development of economic opportunity in the Pacific Northwest." The Conference took up, besides a discussion of major planning problems of the region, the following topics: population and human needs; land and water; power, commerce and industry; local planning; public and business interest in population and resources; resources of government; development, conservation and utilization of physical resources.

Purchasing

Purchasing for Small Cities.—By Russell Forbes and Members of the Staff of Public Administration Service, 1313 E. 60th St., Chicago, Ill. 1939. 22 *pp.* 50c.

Nearly one-third of the expenditures for current operations of the average municipality are made, according to this pamphlet, for supplies, materials, equipment and contractual services. From 10 to 15 per cent on expenditures for commodities can be saved by a municipality, with the introduction of a satisfactory purchasing procedure. This report discusses, particularly from the point of view of the small town, how a purchasing system can be established, and how to operate it after it has been established. Numerous illustrations from successful practice, and typical forms, are also contained in the manual. Charter and ordinance provisions are suggested.

Fire Prevention

How Municipal Fire Defenses Affect Insurance Rates.—By Orin F. Nolting, The International City Managers' Association, 1313 E. 60 St., Chicago, Ill. 1939. 101 *pp.* $1.50.

This pamphlet points out that among the principal factors in determining fire insurance rates in any city are the facilities which that city maintains for protecting property against fire, including not only the facilities of the fire department, but also those of the water, police and other departments. Grading is done by the National Board of Fire Underwriters or by rating bureaus. This pamphlet describes how fire insurance rates are established, and how each city is classified in this respect. It suggests methods for reducing insurance rates, and gives a list of all cities of 30,000 population and over with their gradings.

Site Planning

Planning the Site—Design of Low-Rent Housing Projects.—U. S. Housing Authority, Department of the Interior, Washington, D. C. Apply to U. S. Government Printing Office, Washington, D. C. 1939. 84 *pp.* 60c.

Part I of this bulletin discusses general basic objectives and standards in the design of housing sites. Part II considers the specific features to be dealt with in the planning of a site, such as density and coverage, travel routes, dwelling types, climatic and topographical conditions, utilities layout, spacing and orientation, and servicing. Part III covers the Design and Treatment of Open Areas for Recreation Purposes, and Part IV is a brief section on Planting and Plant Materials. The pamphlet is illustrated with numerous site plans which point out quickly and clearly the principles discussed. See page 77 for the illustrations and discussion of the superblock taken from this publication.

Sewage Disposal

Items Considered in the Review of Sewerage Plans and Specifications Submitted to the State Sanitary Water Board, May 1, 1939.—Department of Public Health Cooperating with Sanitary Water Board, Springfield, Ill. 29 *pp.*

In Illinois, a permit is required from the State Sanitary Water Board for the installation of, or change in, a sewerage system. This bulletin contains opinions and suggestions by the Board on equipment and methods of operation of sewerage works. It is intended as a guide to engineers in the design, construction and operation of sewage-treatment works, as to the details to which the Board gives particular consideration when plans for sewerage works are submitted to it for approval.

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Floods and Fire Protection

The Flood Problem in Fire Prevention and Protection.—By the National Board of Fire Underwriters, 85 John St., New York, 1939. 115 *pp.*

It is the consensus that the country is going to experience even greater floods than have occurred in recent years. Moreover, the importance of floods is increasing. This pamphlet discusses provisions that can be made for protection against fire before and during floods, and in the period of rehabilitation after the flood. It describes the general history, causes, trends and control of floods, and gives a bibliography on the subject; discusses the services of insurance service organizations and other public and private associations during a flood emergency period. Appendices give a resumé of recent great floods, and a summary of underwriting experience relative to floods. The proposed Cincinnati emergency code is also included.

Housing and Health

Healthful Housing — Second Edition. — By the Committee on the Hygiene of Housing, American Public Health Association, New York. Apply to Allan A. Twichell, Technical Secretary, Committee on the Hygiene of Housing, 310 Cedar Street, New Haven, Conn. 1939. 32 *pp.* 25c.

This is an enlarged and revised edition of the valuable report, "Basic Principles of Healthful Housing." It contains 30 basic "Principles with Specific Requirements," considered to be the minimum housing fundamentals necessary for physical, mental and social health, and gives suggestions for methods of attaining these requirements. Problems of management as well as of planning and construction are treated under the four main headings: Fundamental Physiological Needs; Fundamental Psychological Needs; Protection Against Contagion; Protection Against Accidents.

Parks and Recreation

1938 *Yearbook, Park and Recreation Progress.—National Park Service, Department of the Interior. Apply to U. S. Government Printing Office, Washington, D. C.* 1939. 92 *pp.* 35c.

Consisting of discussions and reports by National Park Service officials and other authorities in the field, this yearbook outlines the developments, trends and progress in state, county and city park and recreational work, under the policy of Federal-state cooperation, from October, 1937, to October, 1938. Readers of THE AMERICAN CITY will be particularly interested in articles on "The Akron Metropolitan Park System" and "Community Organization for Camping." A bibliography, including publications from the various states of the country, is given.

Industrial Survey

Second Industrial Survey of Baltimore—A Quarter Century of Progress in the City of Industrial Advantages, 1914-1939. — *Consolidated Gas, Electric Light and Power Company of Baltimore. Also obtainable from the Dept. of Legislative Reference, City Hall, Baltimore, Md.* 1939. 132 *pp.*

Baltimore's industrial growth has increased at a rate considerably faster than the rate of industrial growth of the United States as a whole. This comprehensive and elaborate report gives a brief history of Baltimore prior to 1914 and reviews the city's rapid industrial development since that time, the year when the report of the first industrial survey of the city was published. The volume gives a summary description of all aspects of the city as a seaboard, as a manufacturing center, and as a place to live in. A "Statistical Supplement" included in the report contains detailed data on these aspects of the city, comparing it with 17 other cities in the eastern part of the United States.

Water Development

Millers River, and Deerfield River.—Massachusetts Drainage Basis Studies Nos. 4 and 5. —By WPA, sponsored by The Massachusetts State Planning Board, Room 24, State House, Boston, Mass. 1939. *xii* + 78 *pp. and xii* + 68 *pp. respectively.*

These two reports cover the same general topics. They describe in each case: the watershed; its human occupancy; the streams in the basin; existing conditions and problems related to flow control, water power and supply, stream pollution and waste disposal, irrigation and drainage, inland water recreation and wild life, navigation. They recommend the development of the water resources for the best industrial, recreational and agricultural uses.

Radio Interference

Radio Interference and the Community.—By Austin V. Eastman, Associate Professor Electrical Engineering, Bureau of Governmental Research, University of Washington, Seattle, Wash. 1939. 16 *pp.*

This pamphlet analyzes types of radio interference, and describes the two aspects involved in the reduction or elimination of interference—location of its source, and control of the conditions causing it. Model ordinances for the control of radio interference are included.

Industrial Markets

Industrial Market Data Handbook of the United States.—Bureau of Foreign and Domestic Commerce, Dept. of Commerce, Washington, D. C. Apply to Supt. of Documents, Washington, D. C. 1939. *iv* + 907 *pp.* $2.50.

This comprehensive volume gives in table form data on the location and size of industrial—manufacturing and mining—markets in the United States. It contains figures on industrial production, employment, value of products, cost of material, fuel and power, and output per wage-earner, for cities of 10,000 population and over and for each of the 3,070 counties in the United States. Similar data are given for industries and industrial areas. Included are tables on the method of distribution of industrial goods.

Public Buildings

Bureau Instruction No. 1B Cleaning.—Bureau of Public Buildings, Department of Public Works, New York. 1939. 31 *pp.*

This is a manual of instruction to custodians of public buildings in New York City, which describes the supplies and equipment, and cleaning methods and practices, to be used in all parts of the city's public buildings. It also covers the organization for this work: the responsibility of the building custodian and those under him, time schedules, training, working hours.

Housing

Longshoremen and Their Homes.—By Elizabeth Ogg, illustrated by Bunji Tagawa. Under the auspices of Greenwich House, 27 Barrow St., New York. 1939. 64 *pp.* 10c.

This pamphlet presents the results of a survey by Greenwich House of housing conditions among the longshoremen on the Lower West Side waterfront of Manhattan. The average income of 217 longshoremen families is $900. More than half of the families pay less than $23 a month for rent for homes without bathtubs or steam heat; 47 per cent of the homes have no private toilets; ventilation in most is poor and aggravated by overcrowding. The report presents a strong case for public housing for this group, but points out that the longshoremen can benefit from public housing only if it comes to their neighborhood, since they must live near the piers.

Sewage Treatment

Twelfth Annual Report, Ohio Conference on Sewage Treatment, held at Columbus, Ohio, Sept. 29-30, 1938.—Ohio Conference on Sewage Treatment, Room 302, Depts. of State Bldg., Columbus, Ohio. 1939. 160 *pp.* $1.25.

Papers and discussions reported in this volume cover the following subjects: activated sludge bulking, aero-chlorination, sludge digestion, mechanical filtration, measuring pH of sewage sludge, phases of operation; also summaries of group discussions and the report of the committee on sewage filtration. Appendices outline the progress of construction of sewage-treatment works for correcting stream pollution conditions in Ohio during the past twelve years, and give descriptions in table form of municipal sewage-treatment works and sewer-rental systems in Ohio.

Planning

The Fourth Power.—Paper delivered by Rexford G. Tugwell, Chairman, New York City Planning Commission, in Washington, D. C., on January 27, 1939, at a dinner sponsored jointly by the American Institute of Planners and the American Planning and Civic Association. American Institute of Planners, Hunt Hall, Cambridge, Massachusetts. 31 *pp.*

The "fourth power" refers to a "directive" power using planning techniques, which Dr. Tugwell suggests should be added to the three present executive, legislative and judicial powers of the government. The paper explains what would be the function of such a branch of government; its place in, and implications for, a democratic state; its relation to the other branches of government and to private business; how it can and may come into being.

Health

District Health Development.—Department of Health, City of New York. Published by Neighborhood Health Development, Inc., 125 Worth St., New York. 1939. 53 *pp.* $1.00.

This is the record of the localization of New York City's health services. Subtitled "The Health Center Building Program as Related to the Master Plan for the City of New York," this publication describes the health center and substation building program in New York in the last six years (during which the number of such buildings has increased from one to fifteen), and outlines the proposed future building program. Photographs, plans, and financial and other data are given for completed buildings now in operation, and for buildings under construction. The work of centers and substations and the special function of the child health stations are described.

Finance and Taxation

Assessed Valuations, Tax Rates, Levies, Collections and Miscellaneous Receipts of Michigan Cities and Villages, 1938.—Michigan Municipal League, 205 S. State St., Ann Arbor, Mich. 1939. 29 *pp.* $1.00.

The Michigan Municipal League again reports tax information on its cities and villages, this year including data on other sources of income than the general property tax. Material is presented in tabular form. Totals, and range of rate per capita, for the state, are given for each type of income.

Other Reports Received

ALLIANCE, NEBR.—Annual Report, 1938. 40 pp.

AUGUSTA, GA.—Year Book of the City Council, 1938. 97 pp.

HONOLULU, HAWAII.—Report to the Governor by the Superintendent of Public Works, Year Ending June 30, 1938. 100 pp.

BOGOTA, COLUMBIA, SOUTH AMERICA.—"Manual de Urbanismo," by Karl H. Brunner, Professor de Urbanismo de las Facultades de Arquitectura en Viena, Santiago de Chile y Bogotá. Apply to Apartado 147, Bogota. 1939. In three volumes. $10 each volume.

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Conventions - - When and Where

Meeting is annual convention unless otherwise designated

SEPTEMBER 11-14.—SUN VALLEY, IDAHO.
Montana National Bituminous Conference. Address D. A. McKinnon, General Chmn., Montana State Highway Dept., Helena, Mont.

SEPTEMBER 12-14.—KANKAKEE, ILL.
Illinois Municipal League. Sec., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 12-15.—MONTREAL, QUE.
New England Water Works Association. (Hotel Windsor.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

SEPTEMBER 14-16.—BISMARCK, N. DAK.
League of North Dakota Municipalities. (Patterson Hotel.) Address: Exec. Sec., Myron H. Atkinson, City Auditor, Bismarck, North Dakota.

SEPTEMBER 14-15.—RAPID CITY, S. DAK.
South Dakota Water and Sewage Works Conference. (Hotel Alex Johnson.) Sec., W. W. Towne, State Board of Health, Pierre, South Dakota.

SEPTEMBER 14-15.—WAUSAU, WIS.
League of Wisconsin Municipalities. Sec., Frederick MacMillin, 30 E. Johnson St., Madison, Wis.

SEPTEMBER 18-21.—PHILADELPHIA, PA.
American Institute of Park Executives. (Bellevue-Stratford Hotel.) Exec. Sec., Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 18-19.—DENVER, COLO.
American Water Works Association—Rocky Mountain Section. (Shirley-Savoy Hotel.) Sec., B. V. Howe, State Office Bldg., Denver, Colorado.

SEPTEMBER 18-20.—JOHNSTOWN, PA.
American Water Works Association—Western Pennsylvania Section. (Fort Stanwix Hotel.) Sec., E. P. Johnson, 418 Flannery Bldg., Pittsburgh, Pa.

SEPTEMBER 18-21.—OAKLAND, CALIF.
League of California Municipalities. Sec., Richard Graves, 223 City Hall, San Francisco, California.

SEPTEMBER 18-19.—OAKLAND, CALIF.
California Sewage Works Association. Sec., Fred D. Bowlus, 202 Law Bldg., Los Angeles, California.

SEPTEMBER 18-19.—OLD POINT COMFORT, VA.
League of Virginia Municipalities. Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 20-22.—LANSING, MICH.
American Water Works Association—Michigan Section. (Olds Hotel.) Sec., M. N. Gerardy, Water Board Bldg., Detroit, Mich.

SEPTEMBER 20-23.—SAN FRANCISCO, CALIF.
International Association of Fire Chiefs. (Fairmont Hotel.) Sec., James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.

SEPTEMBER 20-21.—DANVILLE, KY.
The Kentucky Municipal League. (Hotel Gilcher.) Exec. Sec., Carl B. Wachs, Administration Bldg., Univ. of Kentucky, Lexington, Kentucky.

SEPTEMBER 22-23.—DICKINSON, N. DAK.
North Dakota Water and Sewage Works Conference. Acting Sec.-Treas., L. K. Clark, Bureau of Sanitary Engineering, Bismarck, N. Dak.

SEPTEMBER 25-27.—WICHITA, KANS.
League of Kansas Municipalities. (Hotel Lassen.) Exec. Sec., John G. Stutz, Lawrence, Kansas.

SEPTEMBER 29-30.—WINCHENDON, MASS.
New England Sewage Works Association. (Toy Town Tavern.) Sec.-Treas., L. W. Van Kleeck, State Dept. of Health, Hartford, Conn.

OCTOBER 2-7.—BUENOS AIRES, S. A.
Pan-American Congress for Housing. Address: Sec., Ministry of Foreign Affairs, 953 Calle Santa Fe, Buenos Aires, S. A.

OCTOBER 4-6.—CHICAGO, ILL.
Illinois Association of Park Districts. (Congress Hotel.) Sec., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

OCTOBER 5-6.—READING, PA.
American Water Works Association—Four States Section. (Berkshire Hotel.) Sec.-Treas., Carl A. Hechmer, Washington Suburban Sanitary Dist., Hyattsville, Md.

OCTOBER 5-6.—TOLEDO, OHIO.
Ohio Conference on Sewage Treatment. (Commodore Perry Hotel.) Sec., B. M. McDill, Dept. of Health, Columbus, Ohio.

OCTOBER 6-7.—OLEAN, N. Y.
New York State Sewage Works Association. (Olean House.) Sec., A. S. Bedell, Dept. of Health, Albany, N. Y.

OCTOBER 9-10.—SANTA FE, N. MEX.
American Planning and Civic Association. National Parks Conference. Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington, D. C.

OCTOBER 9-11.—PITTSBURGH, PA.
American Public Works Association. Exec. Dir., Frank W. Herring, 1313 E. 60th St., Chicago, Ill.

OCTOBER 9-12.—SAN FRANCISCO, CALIF.
International Association of Chiefs of Police. (Fairmont Hotel.) Exec. Vice-Pres., William P. Rutledge, 1313 East 60th Street, Chicago, Illinois.

OCTOBER 9-12.—DETROIT, MICH.
International City Managers' Association. (Hotel Statler.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

OCTOBER 9-12.—PROVIDENCE, R. I.
International Municipal Signal Association, Inc. (Providence-Biltmore Hotel.) Sec., Irvin Shulsinger, 7 E. 42d St., New York.

OCTOBER 9-13.—BOSTON, MASS.
National Recreation Association. (Hotel Statler.) Sec., Howard S. Braucher, 315 Fourth Ave., New York.

OCTOBER 10-13.—SAN FRANCISCO, CALIF.
National Association of Assessing Officers. Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago, Ill.

OCTOBER 11-13.—KANSAS CITY, MO.
American Water Works Association—Missouri Valley Section. (Hotel President.) Sec., Earl L. Waterman, Univ. of Iowa, Iowa City, Iowa.

OCTOBER 12-14.—MORGANTOWN, W. VA.
American Water Works Association—West Virginia Section. (Morgan Hotel.) Sec., John B. Harrington, State Dept. of Health, Charleston, W. Va.

OCTOBER 12-13.—CHICAGO, ILL.
Central States Sewage Works Association. (Congress Hotel.) Sec., W. H. Wisely, State Dept. of Public Health, Springfield, Ill.

OCTOBER 12-14.—FREMONT, NEBR.
League of Nebraska Municipalities. (Pathfinder Hotel.) Sec.-Treas., C. E. Beals, 204 Brownell Bldg., Lincoln, Nebr.

OCTOBER 14-17.—ATLANTIC CITY, N. J.
Institute of Traffic Engineers. (Ritz-Carlton Hotel.) Sec.-Treas., Harold F. Hammond, 60 John St., New York.

OCTOBER 16-19.—DALLAS, TEXAS.
American Water Works Association—Southwest Section. (Adolphus Hotel.) Sec.-Treas., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 16.—PITTSBURGH, PA.
Conference of Municipal Public Health Engineers. Sec.-Treas., Alfred H. Fletcher, City Health Dept., Memphis, Tenn.

OCTOBER 16-19.—SAN FRANCISCO, CALIF.
Municipal Finance Officers' Association of the United States and Canada. (Empire Hotel.) Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago, Ill.

OCTOBER 16-20.—CINCINNATI, OHIO.
National Association of Public School Business Officials. Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 16-20.—ATLANTIC CITY, N. J.
National Safety Council. M'ng Dir., W. H. Cameron, 20 N. Wacker Drive, Chicago, Ill.

OCTOBER 16-19.—SAN FRANCISCO, CALIF.
National Tax Association. (The Palace Hotel.) Sec., W. G. Query, South Carolina Tax Commission, Columbia, S. C.

OCTOBER 17-20.—PITTSBURGH, PA.
American Public Health Association. (William Penn Hotel.) Exec. Sec., Dr. Reginald M. Atwater, 50 West 50th Street, New York.

OCTOBER 18-20.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. (Haddon Hall.) Sec., Dr. F. Herbert Snow, 327 Telegraph Bldg., Harrisburg, Pa.

OCTOBER 19-20.—HAMILTON, ONT.
The Canadian Institute on Sewage and Sanitation. (Royal Connaught Hotel.) Sec.-Treas., A. E. Berry, Dept. of Health, Toronto, Ont.

OCTOBER 20-21.—ATLANTIC CITY, N. J.
American Water Works Association—New Jersey Section. (Claridge Hotel.) Sec.-Treas., H. N. Lendall, College of Engineering, Rutgers Univ., New Brunswick, N. J.

OCTOBER 20.—WORCESTER, MASS.
Massachusetts Federation of Planning Boards. Hotel Bancroft.) Sec., Frank H. Malley, 240 Maple St., West Roxbury, Mass.

OCTOBER 22-25.—CHICAGO, ILL.
National Association of Commercial Organization Secretaries. (Edgewater Beach Hotel.) Asst. Sec.-Treas., Norma McKellops, 1615 H St., N. W., Washington, D. C.

OCTOBER 23-24.—PRATT, KANS.
Kansas Association of Municipal Utilities. (Roberts Hotel.) Sec.-Treas., L. C. Angevine, McPherson, Kans.

OCTOBER 25-28.—SAN FRANCISCO, CALIF.
American Water Works Association—California Section. (Fairmont Hotel.) Sec., Burton S. Grant, Box 240, Arcade Annex, Los Angeles, Calif.

OCTOBER 25-26.—MILWAUKEE, WIS.
Wisconsin Chiefs of Police Association. (Hotel Pfister.) Sec., R. H. McCarty, Kaukauna, Wis.

OCTOBER 30-NOVEMBER 1.—OSHKOSH, WIS.
American Water Works Association—Wisconsin Section. (Raulf Hotel.) Sec., L. A. Smith, City Hall, Madison, Wis.

NOVEMBER 1-3.—CHICAGO, ILL.
The American Municipal Association. Stevens Hotel.) Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago, Ill.

NOVEMBER 2-3.—UTICA, N. Y.
American Water Works Association—New York Section. (Hotel Utica.) Sec., R. K. Blanchard, 50 W. 50th St., New York.

NOVEMBER 6-8.—CHARLOTTE, N. C.
American Water Works Association—North Carolina Section. (Hotel Charlotte.) Sec., R. S. Phillips, 206 Dacian Avenue, Durham, N. C.

NOVEMBER 16-18.—INDIANAPOLIS, IND.
National Municipal League. Sec., Howard P. Jones, 299 Broadway, New York.

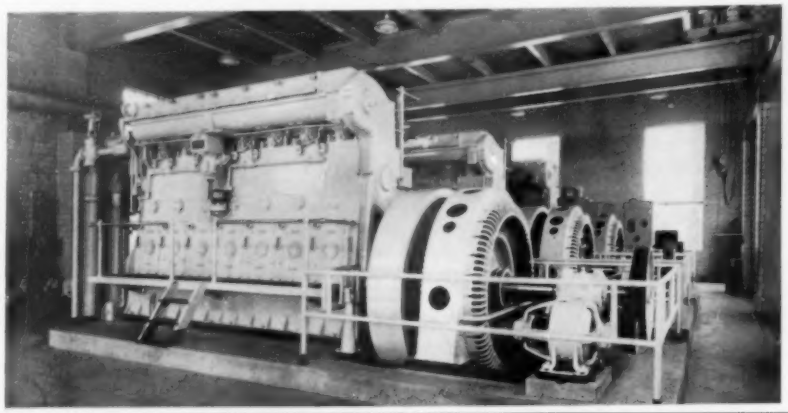
NOVEMBER 22-24.—NEW ORLEANS, LA.
National Association of Housing Officials. Dir., Coleman Woodbury, 1313 E. 60th St., Chicago, Ill.

DECEMBER 4-6.—HOLLYWOOD, FLA.
Southeastern Planning Conference. (Hollywood Beach Hotel.) Convention Mgr., I. N. Parrish, Hollywood Beach Hotel, Hollywood, Fla.

JANUARY 29, WEEK OF, 1940.—CHICAGO, ILL.
American Road Builders' Association. (International Amphitheater.) Engr.-Dir., Charles M. Upham, 952 Nat'l Press Bldg., Washington, D. C.

MARCH 20-22.—TRENTON, N. J.
New Jersey Sewage Works Association. (Stacy-Trent Hotel.) Sec., John R. Downes, Bound Brook, N. J.

APRIL 21-25.—KANSAS CITY, MO.
American Water Works Association. (Hotels Phillips, President and Muehlebach.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

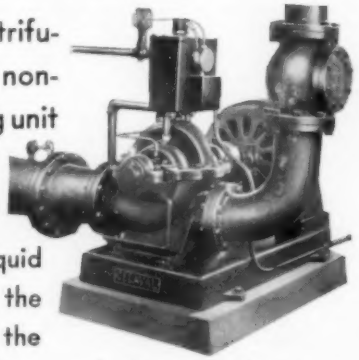


RATHBUN GAS ENGINES
225 H.P. to 2100 H.P.

Three 500 KW Units
Shown as installed
Columbus, Ohio
Operating on Digester Gas

The Rathbun-Jones Engineering Co.
Toledo, Ohio

DE LAVAL Submerged-Suction PRIMING EQUIPMENT

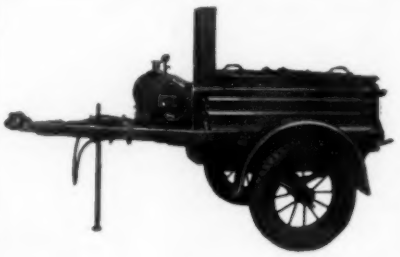


Converts a centrifugal pump into a non-stallable pumping unit

The DE LAVAL system automatically holds the liquid above the eye of the impeller, keeping the pump, the suction line, and all connections continuously full, so that the pump will deliver whenever its motor is running.

Full particulars are given in Leaflet SP-1 sent upon request.

DE LAVAL STEAM TURBINE CO.
TRENTON, N. J. 844



CONNERY'S
Style "S" 4 Pass Oil-Burning Tar & Asphalt Heating Kettle is the ideal heater for highway maintenance. Fuel costs reduced 50% and hot material furnished twice as fast. Equipped with 6.00 x 20—6-ply, pneumatic - tired wheels with Timken bearings, truck springs and patented hitch for fast and safe towing.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

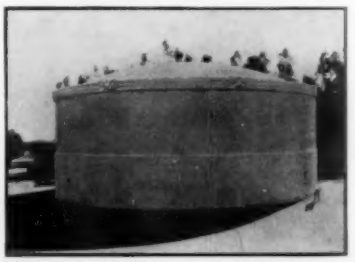
CONNERY CONSTRUCTION COMPANY
4000 North Second St. Philadelphia, Pa.

THE WILLIAM S. HEWETT SYSTEM
of reinforced construction
gives you a structure that WILL NOT CRACK

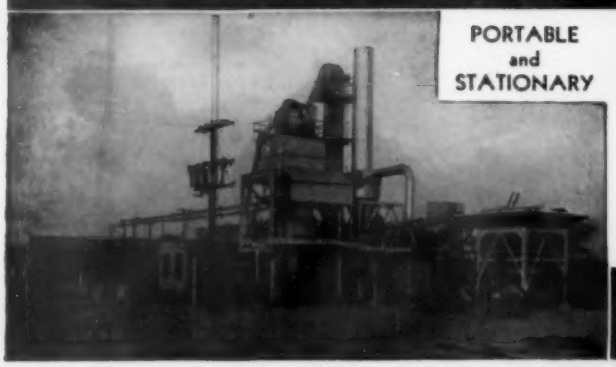
Write for Bulletin A, showing various designs of tanks, reservoirs and standpipes; and Bulletin B, explaining the theories on which the system is based.

The William S. Hewett System
549 W. Washington St.
Chicago, Ill.

Below: Water Tank, 3,000,000-Gal. Capacity at Colton, Calif.
Currie Engineering Company, Engineers, San Bernardino, Calif.



ASPHALT MIXING PLANTS H&B



PORTABLE and STATIONARY

ALL SIZES

FOR HOT AND COLD MIXES
REPRESENTING THE
NEWEST DEVELOPMENTS
in ASPHALT PLANT ENGINEERING

HETHERINGTON & BERNER INC.
ENGINEERS AND MANUFACTURERS
701-745 KENTUCKY AVENUE • INDIANAPOLIS, INDIANA

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Packaged Hypochlorite for Small Water Works

A new handy-sized package of calcium hypochlorite for use by operators of small water plants, sanitarians, swimming pool operators and others, has now become available through Proportioneers, Inc., 9 Codding Street, Providence, R. I. The package consists of a carton containing one 6-ounce bottle of HTH and one 6-ounce Perchloron. This 12 ounces is sufficient to treat 150,000 gallons of water with a dosage of 4 pounds of chlorine per million gallons.

These Handy-Packs have been developed because they will be used up before the contents deteriorate, thus insuring the use of fresh material and eliminating failure to secure properly treated water because of a weak chemical. They simplify operation, for all the operator has to do to get a 0.1 per cent chlorine solution is to dump the contents of one bottle into 30 gallons of water and stir. Further, they give the operator an opportunity to try both HTH and Perchloron and then he can choose the material he prefers.

Every Chlor-O-Feeder is shipped from the Proportioneers factory with one or more Handy-Packs or larger packages of Hypochlorite, the amount depending on the plant size for which the Chlor-O-Feeder is intended. This is another endeavor on the part of Proportioneers, Inc., to make the service of the Little Red Pump of greater service to water-works men.

Fiftieth Anniversary of Chicago Bridge & Iron Co.

The Chicago Bridge & Iron Co., Chicago, Ill., organized in 1889 by Horace E. Horton, is this year celebrating its fiftieth anniversary. Commemorating the event, its interesting publication, "The Water Tower," has appeared with a cover of gold and with the anniversary seal featured on the front cover. Copies of this 18-page Anniversary Issue, which is replete with historical photographs and interesting projects which this construction organization has completed, will be sent to any readers of THE AMERICAN CITY.

Rotovalve Applications in Water-Supply Service

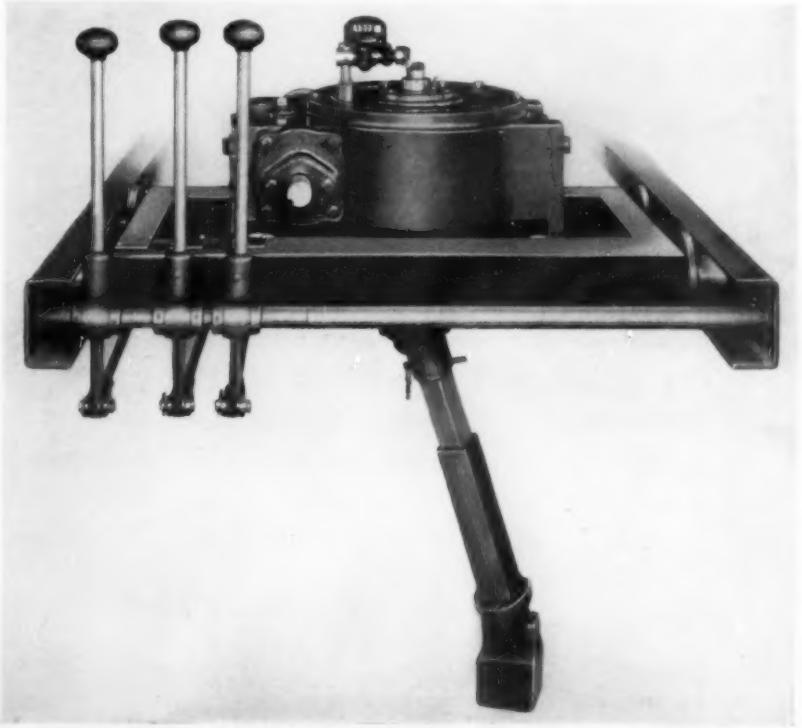
S. Morgan Smith Co., York, Pa., has recently issued Bulletin No. 140 on its standard Rotovalves for water, air and sewage service, manually, electrically and hydraulically operated, in sizes from 6- to 60-inch, and with flanged, hub or bell ends. This is not just another catalog, but is in reality a textbook on conical plug-valves of two-way, three-way, four-way and angle design. The 96 pages of text and illustrations sum up the findings, development and available data pertinent to the use of this type of valve in its many and diverse applications in the water-works and sewage fields. Copies of this bulletin are available on request.

Operating Gate-Valves by Motor Truck Power

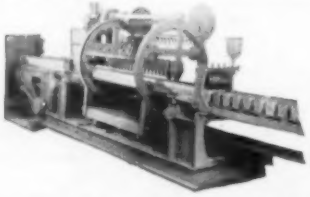
Many water-works officials will recall the Payne Dean valve operating trucks of a few years ago. These have been completely re-designed for adaptation to modern trucks and, are now manufactured by Electromarine Corp., Box 790, Westport, Conn., but the general operating plan is similar to that used before. As the name implies, the Dean valve operating truck is a portable device for opening and closing large under-street water gate-valves, using the truck engine for power. A power take-off attached to the truck transmission delivers the full power of the engine if necessary and drives the valve operating head through automotive propellor shafts and universal joints.

The speed reduction necessary to operate the valves is obtained through a worm gearing in the operating head. The operating device is mounted in a cradle as illustrated, which is movable forward and back and laterally to spot the valve nut without having to maneuver the truck. A revolution counter shows the number of revolutions the valve key has turned in either direction, and this counter is in full view of the operator. Full control of the engine and valve is provided by the levers, one operating the engine clutch so that the movement can be stopped instantly, the two remaining levers controlling the operating speed of the valve for either closing or opening. From this point one man can perform the operation of opening or closing valves without the necessity of an operator in the driver's seat.

An overload protective shear coupling is provided which protects the valve stem and operating parts from damage. Where desirable, the trucks are provided with a heavy-duty generator both for floodlight use and for operating the Dean portable electric valve unit. This portable valve operator may be mounted either on a truck or in a gate-house, and in either case can be driven by power generated by the truck. It has an automatic stopping device as well as the revolution counter. The Dean valve operating device may be mounted on any modern truck having a transmission drilled for power take-off.



The Dean Valve Operating Unit as Seen from the Back of the Truck Chassis, Showing the Valve Operating Key, Universal Joints and, at Top, the Counter Which Records the Number of Turns of the Gate



Greater Uniformity . . . May Be Pre-inspected

ONLY BRICK PAVEMENTS have a traffic surface that is made in a factory under positive control. Hence a highly uniform surface. And one that can be inspected before it is put in place. Modern methods of filler application further develop its non-skid properties.

And, in addition to a maximum degree of safety, brick offers the lowest cost per year of any pavement! More than any other modern pavement, brick is highly resistant to weather damage. Brick that have served two score years and more in severest service are being reclaimed and relaid on new bases.

Brick pavements have the best record for low cost wear. Use on roads or streets — for new construction or resurface jobs. National Paving Brick Association, National Press Building, Washington, D. C.

BRICK

FOR NEW AND RESURFACING JOBS

Do you mention THE AMERICAN CITY? Please do.

Morris Machine Head Dies at Summer Home

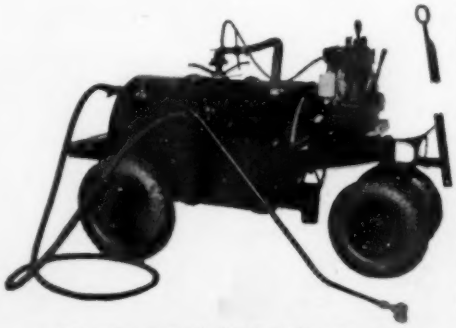
Carl Lager, President of Morris Machine Works, Baldwinsville, N. Y., and one of the nation's foremost designers of pumping machinery, steam engines and hydraulic dredges, died at his summer home in the Adirondacks on July 17.

On September 23 Mr. Lager would have been able to celebrate his fiftieth anniversary in the employ of Morris Machine Works, where he advanced successively as Chief Engineer, Vice-President, and General Manager, and in 1935 became President. He had made extensive improvements in pumping machinery for water works, sewage plants, drainage systems, dry docks, mines and dredges in the United States and foreign countries, and was for 46 years a member of the American Society of Mechanical Engineers.

Asphalt Emulsion Sprayers for Highway Maintenance

The four-wheel Tarrant asphalt emulsion sprayer, made by Tarrant Manufacturing Co., Saratoga Springs, N. Y., is particularly adaptable for handling maintenance patching, because the emulsion drum is mounted directly in the frame of the machine. It is also made as a power sprayer for both side-bung drums and end-bung drums.

After short experience, any group of operators can easily load, apply and unload an average of three to four or more drums of emulsion per hour with one of these units, because of their simplicity. The machines are mounted on four wheels in place of the usual two wheels and a leg rest, and the wheels are of the roller-bearing balloon-tired type. The use of air pressure rather than an asphalt pump as a means of spraying eliminates the necessity for priming, and the congealing which results. Other features which the manufacturer states contribute to maximum gallonage and yardage per day are a power hose and sprayline flushing attachment, quickly accessible large area screens, the quick make-up and breaking of hose connections without the use of tools, and sufficient pump capacity to supply two spray hoses simultaneously where ample truck service is available for the rapid application of cover stone. Full details on Tarco asphalt emulsion sprayers may be secured direct from Tarrant.



The Tarco Asphalt Emulsion Sprayer with Drum

A Motor-Driven Broom Propelled by Truck

A new power rotary sweeper has been developed by Carl H. Frink, Clayton, N. Y., manufacturer of Frink Sno-Plows for motor trucks and tractors, and is being marketed under the trade name "Roto-Broom." This sweeper attaches to the front end of any motor truck and may be used by city and village street departments, as well as by caretakers of parks, airports, playgrounds and other large areas wherever a moderate accumulation of dust, dirt, sand, gravel, cinders, mud, leaves, or snow must be removed.

The broom assembly is readily reversible for sweeping either to the right or to the left, or may be locked in the central position to sweep straight ahead. A flexible hook-up to the motor truck permits oscillation of the broom assembly to follow closely any unevenness in the street or other surface. The height of the brush is controlled by a convenient adjustment between the broom assembly and the chassis assembly, which compensates also for wear of the brush filler.

The New Frink Roto-Broom for Cleaning Streets and Roads

Generous-sized castor wheels with double-tube pneumatic tires carry the weight of the broom and facilitate guiding it in any direction. The broom is powered by a 4-hp air-cooled Wisconsin engine coupled to the broom through an enclosed worm and gear speed reducer, sprockets and roller chain. The speed of the rotating brush is approximately 102 rpm and it cleans a space about 7 feet wide. The brush core is refillable.

Provision is made for directing a sheet of finely atomized water down in front of the brush when the broom is being operated for cleaning city streets. Water pressure is provided by a V-belt-driven centrifugal pump which draws water through a flexible hose from a receptacle in the dump body of the truck.

When not in use, the broom is raised for carrying by means of the regular Frink Sno-Plow truck attachment mounted on the front end of the truck. Trucks already equipped with this attachment for use with Frink plows may obtain the Roto-Broom without this attachment and therefore effect a saving in the price.

The Versatile P&H Model 255 Being Used as a Crane

Excavator Used as Crane on Pipe-Laying Job

Low, overhanging wires directly above a trench presented pipe-installation difficulties to a prominent Cincinnati contractor on a recent municipal job where 36-inch diameter steel water pipe was being placed.

The contractor had been using a P&H Model 255 crawler-mounted excavator which, during the course of the job, had seen duty mostly as a shovel equipped with standard shovel boom and dipper sticks. Although this excavator is convertible for such types of service as crane, clamshell, kimmer scoop, trench hoe, pile driver, etc., it wasn't practical to mount the crane boom, inasmuch as the low clearance made its use difficult. To meet the situation, the contractor removed the dipper sticks and dipper attachment from the standard shovel boom and used the excavator, equipped with shovel boom only, as a crane to lift and lower the pipe in place. Following this, a clamshell bucket was used with the standard shovel boom for cleaning up operations.

The versatility of the modern high-speed excavator is a valuable feature and, as shown here, is being used to a distinct advantage by contractors engaged in all types of work. The P&H Model 255 excavator used is one of the newest of its type, equipped with tractor-type crawlers and built of new alloy steels, all welded throughout, for greater strength, less weight and greater mobility. The Model 255 is manufactured by the Harnischfeger Corp., 4400 West National Ave., Milwaukee, Wis.

Southern Representative for Western Cataphote

The appointment of A. B. Moore as sales representative for The Western Cataphote Corporation, Wall Street, Toledo, Ohio, has been announced by C. T. Harther, President.

Mr. Moore, who brings a background of many years' experience in reflecting sign and highway traffic problems to his new duties, opened his headquarters in Atlanta on August 1.

Boone, Iowa, Merchants Salvage Old Street with a CONCRETE RESURFACE

For low annual pavement cost select a concrete design adapted to your traffic conditions.

Cross-section of concrete resurfacing. Note the 10-ft. parking lane tapers from 5 in. to 4 in. thickness to maintain curb height.

As it looked in 1939—Six blocks of Story St., Boone, Iowa, were resurfaced with concrete in 1937. Worn-out topping was removed and new 5-in. slab was placed over the old 5-in. base in 4 longitudinal sections—10, 15, 15 and 10-ft. Bemis & Schlick of Des Moines, Contractors. George Nelson, City Engineer.

FIVE inches of concrete resurface—that was the way Boone, Iowa, salvaged the old concrete base on Story Street and combined its remaining beam strength into a new pavement of adequate load-carrying capacity.

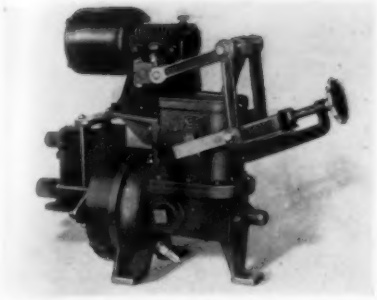
Downtown merchants were glad to foot the entire bill through assessments on abutting property. And little wonder! They got a "bargain"—a lasting pavement inviting to farm trade . . . safe, smooth-riding, easy-to-keep-clean . . . economical to maintain and low in first cost.

Years of experience show that it may be most practical and economical to salvage old pavements with concrete. Concrete resurface may be the best answer to your problem. Design and construction details are described in booklet, *"Salvaging Old Pavements with Concrete,"* mailed free on request (within the U. S. or Canada).

PORTLAND CEMENT ASSOCIATION, Dept. A9-4, 33 W. Grand Ave., Chicago, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work.

During September we hope you will remember to mention THE AMERICAN CITY.



The New Infilco Type DP Chemical Solution Feeder

New Type of Chemical Solution Feeder

A new plunger-diaphragm type solution chemical feeder for volumetrically measuring and pumping clear, corrosive liquids, recently introduced by International Filter Co., 325 West 25th Place, Chicago, Ill., is described in Bulletin No. 360. Copies are available upon request.

The bulletin describes the feeder's unique principle of operation, wherein the rubber pumping diaphragm is actuated by the pump plunger through a transmission liquid. Thus hydraulic pressure is applied uniformly over the entire diaphragm surface. This method of actuation, with which there are equal pressures on both sides of the diaphragm at all times, results in less strain and wear, longer life, and greater sustained accuracy than if the diaphragm were mechanically actuated. The pump will accurately feed at any desired rate not exceeding 2.75 gallons per minute.

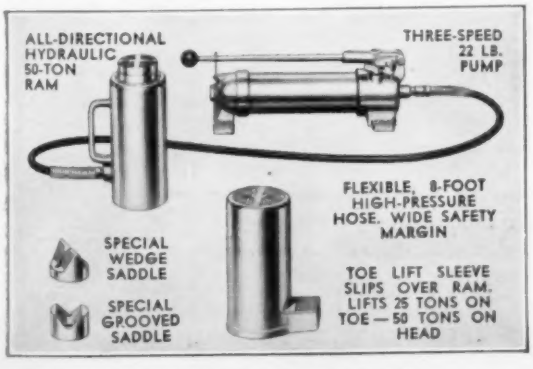
50-Ton Hydraulic Jack Is All-Directional

The new 50-ton Model S-80 Porto-Power jack, recently announced by the Blackhawk Manufacturing Co., Milwaukee, Wis., is capable of all-directional action because its pump is separated from the ram by a durable high-pressure hose. This remote-control feature also enables the jack to work in dangerous or cramped quarters.

Another feature is its light weight, the 22-pound pump and 60-pound ram being easily carried by one man. A selector valve on the pump regulates the pumping speed of the ram for 15-, 25- or 50-ton loads. The ram, having a low height of 11 inches, has a 6-inch hydraulic lift, and its plunger retracts automatically when the release valve on the pump is opened.

The Model S-80 Porto-Power also includes two special saddles for pushing against bars, grooves, etc. A sleeve is also available for converting the ram to a toe lift jack, lifting 25 tons from 2¼ inches off the ground to a height of 8¼ inches.

Complete information on this Porto-Power jack and other jacks in the Blackhawk line may be secured by those interested direct from the manufacturer.


ALL-DIRECTIONAL HYDRAULIC 50-TON RAM
THREE-SPEED 22 LB. PUMP
FLEXIBLE, 8-FOOT HIGH-PRESSURE HOSE. WIDE SAFETY MARGIN
SPECIAL WEDGE SADDLE
SPECIAL GROOVED SADDLE
TOE LIFT SLEEVE SLIPS OVER RAM. LIFTS 25 TONS ON TOE—50 TONS ON HEAD

The Blackhawk Porto-Power Jack

Tar Pre-Mix a Patented Process

An article on the subject of a new type of low-cost pavement which has been successfully used in Cranston, R. I., appeared in the August issue of THE AMERICAN CITY under the title "Tar Pre-Mix for City Streets." The article stated that the basis of this particular type of paving is a tar pre-mix which is fundamentally new, using 18 gallons of Koppers Tarmac to each cubic yard of aggregate. It did not, however, state that the process is patented by Koppers Co., Pittsburgh, Pa., and we should like to point out this fact to our readers.

Licenses to use this pre-mix process are issued to highway officials and contractors, under Patent No. 2043037.

Water Hammer Arrester for Distribution Lines

As a result of a three-year cooperative research project at the University of Wisconsin Engineering Experiment Station Hydraulic Laboratory, the Water Hammer Arrester Corporation, West Pierce and Twelfth Streets, Milwaukee, Wis., has announced the Wacor water hammer arrester in six sizes for use on lines up to 2 inches in diameter.

A complete description of the results obtained with this device and how it operates is contained in a well-illustrated 8-page bulletin, No. 29-C, which will be sent free on request to those mentioning this item.

Arresters for eliminating water hammer pressure in pipes up to 10 inches in diameter are also manufactured, and details will be gladly furnished, on request.

Lighting Distributors at Westinghouse School

Looking forward to one of the best years in lighting history, more than 200 electrical jobbers, manufacturers' representatives, and others interested in secondary distribution discussed new trends in industrial, commercial, aviation, and street and highway lighting at the Fifth Annual Westinghouse Lighting School, held at the company's Cleveland works July 14-16.

W. F. White, Westinghouse Lighting Division Manager, Shows Vice-President Walter Williamson of the Westinghouse Electric Supply Co. How Easily the Floodlights at Philadelphia's Shibe Park May Be Opened for Maintenance

In welcoming the group, W. F. White, Manager of the Westinghouse Lighting Division, pointed to an increase of 21 per cent in Westinghouse lighting business during the first six months of this year as compared with a similar period during 1938, and predicted that the 1939-40 season would be even more prosperous.

Principal talks included summaries of markets and the introduction of new and improved lighting units. Among the noteworthy developments were new industrial fixtures and controls for fluorescent lamps, an inexpensive conversion unit for modernizing outdated street-lighting systems, and many new and improved units for industries, airports and floodlighting.

You can't get rid of
SLIMY SAM SEWER SLUDGE
with a shovel—

You gotta have an OK Champion Sewer Cleaner to clean out your sewer mains.

The hand models will get him positively, but the power machines will do it faster. You don't want to send men down to spend all day in the sewer when it isn't necessary. You can't endanger the health of your citizens by dirty sewers when the remedy is so easy. Your expensive sewage disposal plant can't do its best work when sewers are dirty and costly damage to the plant happens regularly with dirty sewers.

Many years of rains washing down street dirt, cinders, bricks, etc., eventually fill up any sewer. Finally comes the day of flooded basements, damage suits and hurry-up, unsatisfactory, emergency, temporary cleaning.

New York City, Atlantic City, Flint, Little Rock, Bay City, Duluth, Westfield, Jersey City, Akron, Midland, Gary and hundreds of other cities keep their sewers at full efficiency by routine machine cleaning with OK Champion equipment. The cost is very low.

Why not get your copy of OK Champion literature, now ready for you?

CHAMPION CORPORATION
4716 Sheffield Ave., Hammond, Ind.

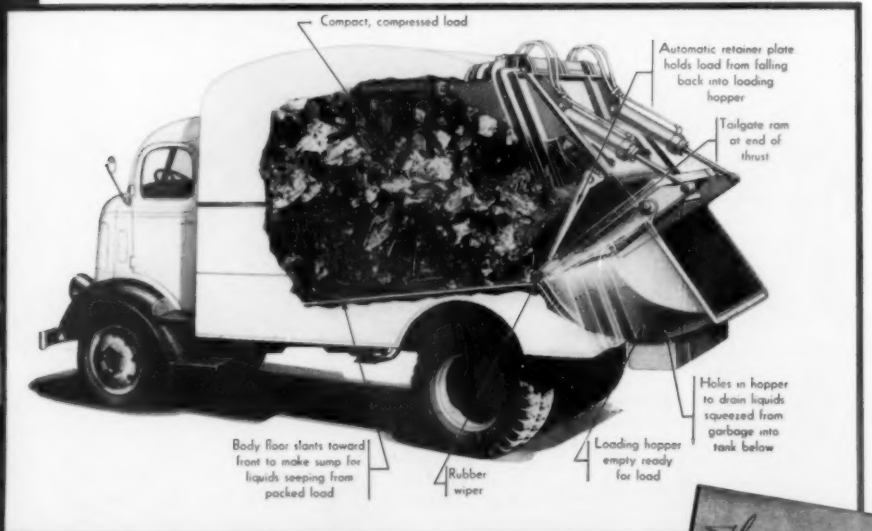
Low loading sill for faster, easier loading.

The GAR WOOD LOAD-PACKER

Offered exclusively by Gar Wood Industries, Inc., the new Gar Wood Load-Packer is the newest, fastest, most sanitary and economical unit for collecting and hauling garbage and rubbish. All-enclosed body with only one opening for loading. Odors are confined. Papers cannot blow away. No unsanitary trough or bucket on outside to permit spillage. The Gar Wood Load-Packer operates like a hydraulic baler—compresses all types of garbage, refuse and rubbish into a compact load—accommodates greater loads in comparison with other types of bodies of similar capacity by reason of compressing the load. Liquids are squeezed out allowing garbage to burn faster.

For complete information ask for Bulletin No. 27.

Garbage, refuse or rubbish rammed into body.


Compact, compressed load
Automatic retainer plate holds load from falling back into loading hopper
Tailgate ram at end of thrust
Holes in hopper to drain liquids squeezed from garbage into tank below
Body floor slants toward front to make sump for liquids seeping from packed load
Rubber wiper
Loading hopper empty ready for load

Compressed load slides out cleanly and quickly.

Two hydraulic cylinders thrust the tailgate ram against the garbage in the loading hopper, ramming it from the hopper and packing it into the body. This operation cleans out the hopper.

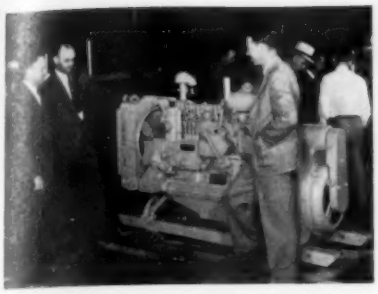
GAR WOOD INDUSTRIES, INC.

7924 Riopelle Street • DETROIT, MICHIGAN, U.S.A.

Branches and Distributors Everywhere

WORLD'S LARGEST MANUFACTURER OF TRUCK EQUIPMENT

Hoists and Bodies—Truck Tanks for Fuel Oil, Gasoline, Milk, Liquids
Winches and Cranes—Roadbuilders, Bulldozers and Hydraulic Scrapers.



B. C. Heacock, President (Left), and Don Robinson, General Sales Manager (Right), Previewing One of the New Diesel-Electric Sets at the Caterpillar Factory

New Diesel-Electric Set Is Self-Contained

Two new, completely self-contained diesel electric sets, designed to bring low-cost lighting and power to municipalities, have recently been announced by Caterpillar Tractor Co., Peoria, Ill. The sets are of 15- and 20-kilowatt capacity, and the job of installation requires only that wire connections be made from the generator terminal to a circuit breaker, and from the circuit breaker to the distribution box. All electrical equipment required by the sets is in-built, with the exception of the circuit breaker. No rheostats, switchboards, instruments or complications of any sort are encountered.

Uses for these new power packages are extensive. They serve either as emergency power or prime mover for small airports, as a bridge standby in congested areas and prime mover in isolated locations, for water, refrigeration, lights and miscellaneous power in construction camps, as power and lights for swimming pools, athletic fields and other recreational centers. They can be used as emergency power in hospitals, to replace and give greater power than storage battery standbys. They are suitable as prime movers or standbys in municipal pumping plants and radio stations of 2,000 to 3,000 watts.

The engines have three operating adjustments, none of which involves the diesel fuel system. The generators are of single-unit construction, equipped with ball bearings which require lubrication only once in six months. Built-in regulation enables the set to pick up relatively large motor loads with little light flicker or voltage drop.

The two sizes available are the 34-15 and 44-20. The former set is applied in 3-phase, 110, 220 or 440 volts at 15 kw, 0.8 power factor and as single-phase, 110-220 volts, three-wire type, and 110- and 220-volt two-wire type at 13 kw, 0.8 power factor.

The 44-20 set is supplied in 3-phase, 110, 220 or 440 volts, at 20 kw, 0.8 power factor. It is also available in single-phase, 110-220 volts, three-wire type; and 110 and 220 volts, two-wire type at 18.5 kw, 0.8 power factor.

Three Germicidal Lamps Made by General Electric

The development of three new ultra-violet-emitting tubes designed expressly for a wide variety of sterilizing services has been announced by the Lamp Department, General Electric Co., Nela Park, Cleveland, Ohio. These G-E Germicidal Tubes are available in 3-, 5- and 15-watt sizes and generate ultra-violet radiation in much the same manner as do fluorescent lamps. Unlike the latter, however, the new germicidal lamps employ neither powder, which, in fluorescent lamps converts the ultra-violet into light, nor common glass, which absorbs germicidal ultra-violet rays.

Installed experimentally in air ducts, the new germicidal tubes have proved highly successful in killing air-borne bacteria. Thus they show promise as a preventive of the spread of disease in hospitals, schools and elsewhere. They are also being tried out for food preservation by meat-packers, butchers, bakers and canners. Tests indicate that at medium humidity one 15-watt tube in a duct made of non-reflecting material can sterilize 150 to 200 cubic feet of air per minute. If the surface of the duct is a good reflector of the ultra-violet radiation, a single tube can sterilize considerably greater amounts of air per minute. One of the best reflectors is chemically etched aluminum.

To kill the common and stubborn Bacilli coli, the lethal dosage from the G-E germicidal tubes must be 6,600 microwatt seconds of the ultra-violet radiation per square centimeter of area covered. A microwatt is one-millionth of a watt. Tests show that B-coli organisms, exposed to radiation from a bare 15-watt tube at a distance of 10 inches, are killed in 30 seconds.

In addition to the three new tubes, General Electric has announced that two other types of germicidal tubes can be made available. One type, known as the cold-cathode unit, with a rating of about 6 to 10 watts, may be had in 10-, 20- and 30-inch sizes. The other, referred to as the Uviarc, may be had in sizes from 250 to 1,200 watts. The latter are quartz mercury-arc types and are designed particularly, though not solely, for use by the medical profession.

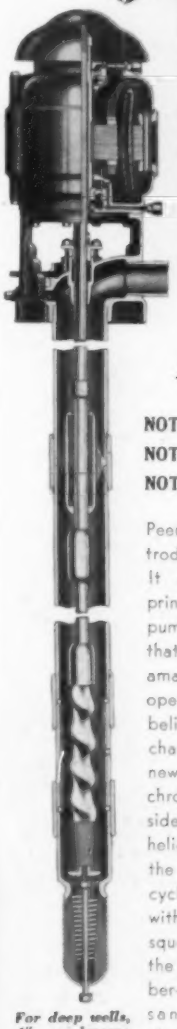
The Three New G-E Germicidal Tubes

PEERLESS *announces*

HI-LIFT

– MOST AMAZING PUMP IMPROVEMENT IN 35 YEARS

NEW DESIGN NEW PRINCIPLE



Utterly Different

NOT A TURBINE PUMP
NOT A PLUNGER PUMP
NOT AN INJECTOR PUMP

Peerless scores again by introducing the HI-LIFT Pump. It offers a radically new principle; unlike any other pump;—so far in advance that water engineers are amazed when they note its operation and study its unbelievable performance-charts. Pump costs hit a new low. A single hard-chrome **helical rotor** rolls inside of a cutless rubber helical **stator bearing** at half the usual speed. The hypocycloidal motion of the rotor with the stator spirally squeezes the water through the pumping element. Rubber-against-metal prevents sand-cutting. The hard chrome surfaces of the pump shaft are supported by long Goodrich cutless rubber bearings, water-lubricated. No priming or pre-lubrication.

For deep wells, 4" or larger; capacities, 300 to 5000 gallons per hour. Will operate under high pressure. Write today for Bulletin.

PEERLESS PUMP DIVISION
Food Machinery Corporation
Factories:
LOS ANGELES, SAN JOSE, FRESNO, CALIF.
MASSILLON, OHIO.

Burroughs FANFOLD MACHINE

SPEEDS THE WRITING OF TAX BILLS • WELFARE CHECKS • SPECIAL ASSESSMENT BILLS • VOUCHER CHECKS FOR ACCOUNTS PAYABLE • PURCHASE ORDERS • DELINQUENT NOTICES • METER CHANGE ORDERS • AND MANY OTHER MUNICIPAL FORM-WRITING JOBS

JUST TOUCH ONE KEY—

Carriage Opens *Automatically!*

Forms are Released *Automatically!*

Carriage Returns *Automatically!*

Carbons Shift *Automatically!*

Then—as the operator removes the completed set of forms—

New Forms Lock in Place *Automatically!*

Carriage Closes *Automatically!*

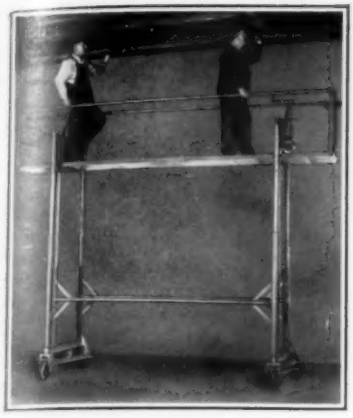
Volume jobs such as the writing of tax bills, welfare checks and many other municipal forms must be done on a rigid time schedule. The Burroughs Fanfold Machine offers many time-saving advantages to speed up this important phase of the accounting work.

Burroughs Fanfold Machine permits the use of continuous forms, thus saving time ordinarily required to insert and remove cut forms. Floating carbons, which are automatically retracted from one set of forms to the next, speed the operation and insure maximum service from each sheet of carbon paper.

Ask your local Burroughs office for a demonstration. Or, if you prefer, write direct for complete information.

BURROUGHS ADDING MACHINE COMPANY, DETROIT, MICHIGAN

THE MACHINE —NOT THE OPERATOR— DOES MOST OF THE WORK



The Scafol-Car

Traveling Scaffold a New Safety Convenience

Something new in the way of a portable scaffold has been developed by the Economy Baler Co., Dept. AC, Ann Arbor, Mich. The Scafol-Car is safe, practical, and self-moving as well as self-raising and lowering. Workmen inside its safety guard railing can work with both hands at proper height without fear of falling. It eliminates the old dangerous step-ladder and rickety scaffold and also the cost of moving and resetting.

Workmen simply roll the Scafol-Car to the job and place their tools and equipment on the working platform. They lift or lower themselves and the load to the proper height for convenient work by simply turning the lifting crank. Then, without getting down, they can move the Scafol-Car with themselves and the load backward, forward or any way desired by turning the driving crank that propels the bottom driving wheel.

The Scafol-Car is excellent for maintenance departments and for construction work of any sort. Not only does it protect the workman inside the railing around the platform, but protects people below as well. The manufacturer will be glad to furnish further details or a leaflet showing pictures of the apparatus in operation free upon request.

New Moisture Trap for Digester Gas Lines

A new positively sealed moisture trap for removing small quantities of moisture from digester sludge gas lines without any attendant hazards of gas leakage has been announced by Pacific Flush-Tank Co., 4241 Ravenswood Avenue, Chicago, Ill. In a normal installation the moisture from the digester gas line drains into the trap, which is placed at the lowest point in the line. Periodically the collected moisture is drained off by manually turning the operating valve a half-turn, or 180 degrees. This operation positively closes the gas-line connection before opening the drain, making it impossible for any gas to leak out. After drainage is completed, a half-turn of the operating handle back cuts into the gas line again for continued operation.

The P. F. T. Condensate Trap is furnished with 1-inch pipe thread and with a reservoir of approximately 2-quart capacity. All parts of the trap proper are rugged aluminum castings. Details of the construction are as shown in the accompanying sectional view. These units are designed to operate at pressures of 1 pound per square inch or less.

Atlas Mineral Products Personnel Changes

C. R. Payne, who for the past four years has been in charge of research for The Atlas Mineral Products Co., Mertztown, Pa., has been elected a Director and Vice-President of the company. For seven years prior to 1935 Dr. Payne was associated with the Mellon Institute of Industrial Research.

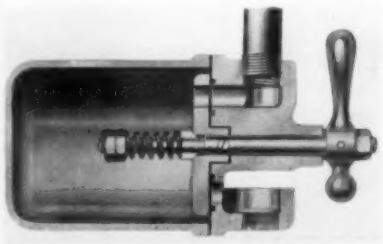
Raymond B. Seymour has resigned his position with the Goodyear Tire & Rubber Co. to join the research staff of The Atlas Mineral Products Co. and will devote his time to the development of corrosion-proof materials of construction.

A. M. Younger has been appointed to the Technical Sales Staff of the company. He will be in charge of sales in the Chicago area. Mr. Younger is a graduate of the University of Michigan and was formerly employed by the Chicago Flexible Tube Co.

Reprint on Pump Station Offered by De Laval

An article describing the Colonel Francis G. Ward Pumping Station in Buffalo, N. Y., prepared by Howard W. Fitzgerald, Chief Engineer, Division of Water of Buffalo, is being distributed by the De Laval Steam Turbine Co., Trenton, N. J., builders of the new main pumping equipment. Copies of this article in folder form may be secured by readers of THE AMERICAN CITY by writing direct to De Laval Steam Turbine Co. and mentioning this item.

The equipment consists of three motor-driven centrifugal pumps of 15 mgd capacity working against a 97.5-pound head, taking the place of five triple-expansion pumping engines of the same total capacity formerly used and now held in reserve. The motor-driven pumping units are guaranteed to show 85.529 per cent over-all or wire-to-water efficiency, which, on the official acceptance test, was substantially exceeded. With power at $0.00482 per kwh, the cost of pumping is $3.80 per million gallons.



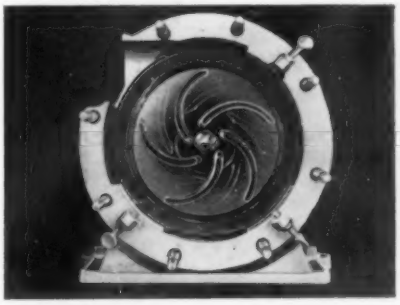
The New P. F. T. Condensate Trap for Sewage Sludge Digester Gas Lines

A Centrifugal Pump Built of Glass

An entirely new kind of pump with the mechanical advantages of metal and the chemical advantages of glass has been announced by The Nash Engineering Co., South Norwalk, Conn. This Nash glass centrifugal makes it possible to pump corrosive acids and chemical fluids in commercial quantities. These fluids would quickly destroy metal pipes and pumps. Laboratory and other equipment of glass has solved many of these problems, and now a pump built of glass gives the chemical engineer an entirely new tool.

Made of Pyrex brand heat- and shock-resisting glass, the pump impeller and casing are not affected by temperatures up to 150 degrees F. in standard design and 200 degrees F. in special design. Hot acids or brine-cooled liquids may be pumped with equal facility, and it is even possible to pump hot muriatic acid.

Fully transparent, the interior of the pump and the material being handled is subject to examination at all times. The



The New Nash Centrifugal Pump Built of Pyrex Glass

cleanliness of the interior and the color, sedimentation and other characteristics of the material passing through may be constantly checked without stopping the pump.

Cleaning, when required, may be done quickly, for the whole interior may be laid open in a few minutes. Reassembly, after cleaning, is accomplished as quickly, and the proper adjustment is practically automatic. When cleaning, acid solutions may be used without fear of injuring or pitting the hard chemical-resistant Pyrex glass of which the pump is made. Dangerous pressure is relieved automatically if for any reason it should develop in the interior of the pump, before it builds up to a point where there would be danger of fracture of the glass casing itself.

Conceived by the Corning Glass Works, Corning, N. Y., and designed and manufactured by the Nash Engineering Co., South Norwalk Conn., this product is an outstanding contribution to the chemical, food and process industries. It is also of interest to engineers who wish to handle corrosive chemicals in large quantities for water and sewage treatment. A bulletin describing the pump may be secured from the Nash Enginering Co.

The Simplex Gyrometer

Gages and Meters Shown in New Catalogs

A bulletin on the Simplex Gyrometer, a device for integrating the flow of any fluid, whether liquid or gaseous, in any size pipe or main containing either venturi tube, nozzle, orifice or Pitot tube, has recently been issued by Simplex Valve and Meter Co., 68th and Upland Streets, Philadelphia, Pa. Photographs of the Gyrometer, wall-mounted, a diagram of its parts arrangement, and a full description of its functions and applicability to the measurement of water and sewage, appear in this Bulletin No. 120.

A new bulletin on the various types of Simplex filter and water-works gages has also been brought out by the same manufacturer. This bulletin, No. 78, includes diagrams of the types of loss-of-head, rate-of-flow and elevation gages available, descriptions of each, and photographs of some typical installations.

Either bulletin can be obtained by writing direct to the manfacturer and mentioning this item.

A Proportioning Valve for Sewage Treatment

A flow control valve designed to resist corrosive attack, and made primarily for regulating the flow of ferric chloride solution in sewage-treatment processes, has been developed by Hasco Valve & Machine Co., 1819 West St. Paul Avenue, Milwaukee, Wis. This valve can be used with any acids except hydrofluoric, fuming sulphuric or highly oxidizing reagents, and it cannot be used with strong alkalis.

The valve is completely lined with live rubber, except for the seat and plug, which are tantalum. The tantalum ring seat, which is firmly vulcanized into a rubber seat ring and then clamped into place by the upper and lower halves of the valve body, permits easy removal for inspection and cleaning. The rubber lining is applied by Goodyear Tire & Rubber Co.

The metal stem supporting the tantalum is protected by a rubber bellows. This removes the need for packing and a packing gland, eliminating the usual friction of the packing on the stem, and making the action smooth and sensitive. The manufacturer reports that a test valve of this type was operated for eight months in a Chicago sewage-treatment plant with no evidence of corrosion or wear inside the valve.

This valve is made for regulating purposes only. It is not a shut-off valve, but is designed to be operated by an Askania ratio regulator which maintains a metered proportion between the sludge and ferric chloride. This is accomplished by using the sludge flow as an actuating impulse. The regulator controls an hydraulically operated cylinder which moves the valve stem, admitting more or less ferric chloride in accordance with the rate of flow. An adjustment on the regulator permits changes for variations in the concentration of the sludge.

The manufacturer states that when properly installed the Hasco flow control valve requires no maintenance or repairs. When used with ferric chloride or other solutions for which it is recommended, there is no part of the valve subject to chemical attack. The tantalum seat and plug are highly resistant to erosion or "wire drawing," even when working against high pressures and velocities.

Water Treatment with Activated Carbon

A well-prepared 50-page treatise on the treatment of water with activated carbon, covering the subject historically as well as practically and quoting from many authorities, has been prepared for general distribution by L. A. Salomon & Bro., 216 Pearl Street, New York. The booklet deals with all the features of Norit super-activated carbon and its uses in taste and odor control in municipal water supplies. Copies may be secured free on request through this magazine or by writing direct to the manufacturer and mentioning this item.

Gas Engines Ordered for Greenville Sewage Plant

The Cooper-Bessemer Corporation, Mt. Vernon, Ohio, has recently received an order for two of its Type GN gas engine generating units to be installed in the Greater Greenville, S. C., sewage-treatment plant late this year. The project is being furthered with PWA assistance and the engineers in charge are J. E. Sirrine & Co., of Greenville. The contractors for this extension to the plant are V. B. Higgins Co. of Greensboro, S. C.

The two engines are Cooper-Bessemer 4-cylinder units, rated 225 hp at 450 rpm, and direct drive General Electric 150-kw generators with exciters by the same maker. The engines will operate upon sewage gas from the plant and generate electric current for powering the many auxiliaries, lighting, etc. Both engines will be equipped with dual ignition systems which include twin magnetos, two complete sets of spark plugs, and double wiring. Space is provided in the plant for a third engine should such an addition become necessary.

Removing Excess Tar from Brick Pavements

A spray solution to facilitate the removal of excess tar from new brick pavements has just been announced by engineers of The Dow Chemical Co., Midland, Mich. This solution consists of 100 pounds of calcium chloride and 40 gallons of water with 6 pounds of starch. Spraying the bricks with this solution after they have been laid in place prevents the tar, which is applied to fill the crevices, from sticking to the brick and allows the excess to be easily removed.

The hot tar is poured at a temperature ranging from 350 to 400 degrees F. and allowed to set. The excess tar is then easily and economically removed from the surface by means of a scraper. When bricks have been treated with calcium chloride solution the tar does not stick to them, and is peeled up in long, narrow ribbons by the scraper. This tar may later be used again.

Not only is the tar more easily removed by the use of the calcium chloride solution, but the appearance of the pavement is improved as well, Dow technicians claim.

New Plant for Hough Loaders and Sweepers

The Frank G. Hough Co., manufacturer of hydraulic loaders and other tractor front-end equipment, motor pick-up sweepers, road blowers and combination sweeper-blowers, has centered its activities at its new plant at Libertyville, Ill., a suburb of Chicago. Executive offices and the engineering, purchasing and sales departments will be located at the new plant.

Manufacturing will continue as before at plant No. 2 in New Holstein, Wis., which will concentrate on standard models of Hough equipment. Special models and newer equipment will be made at plant No. 1 in Libertyville.

The addition of these manufacturing facilities will double the production capacity and provide ample space and opportunities for experimental work, equipment operation studies and new equipment development.

The New Plant of the Frank G. Hough Co. at Libertyville, Ill.

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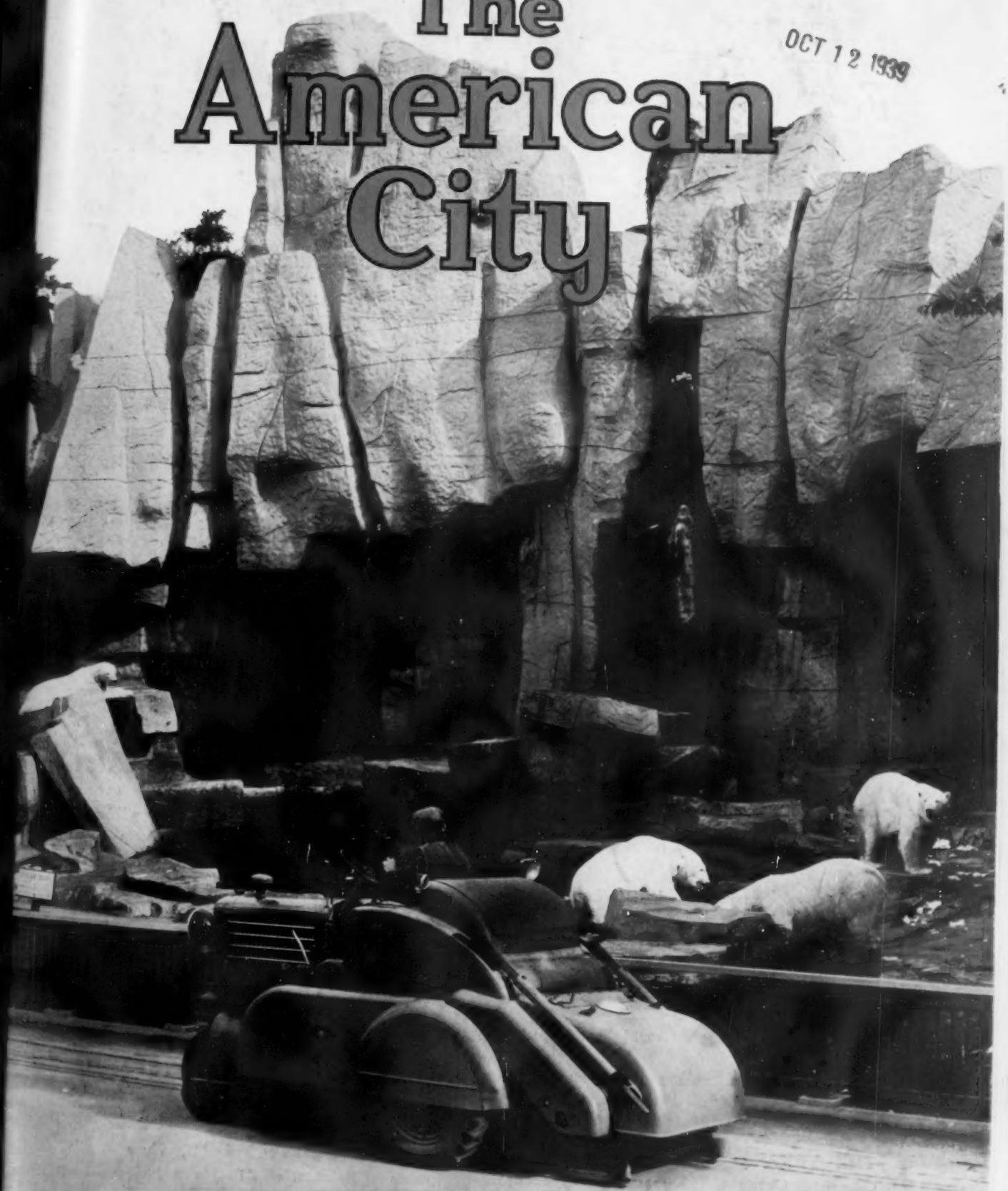

In the Chicago Zoological Society Zoo at Brookfield, Ill.,
visited daily by thousands,
discarded papers, peanut shells and debris
are cleaned from the walks by this motor sweeper